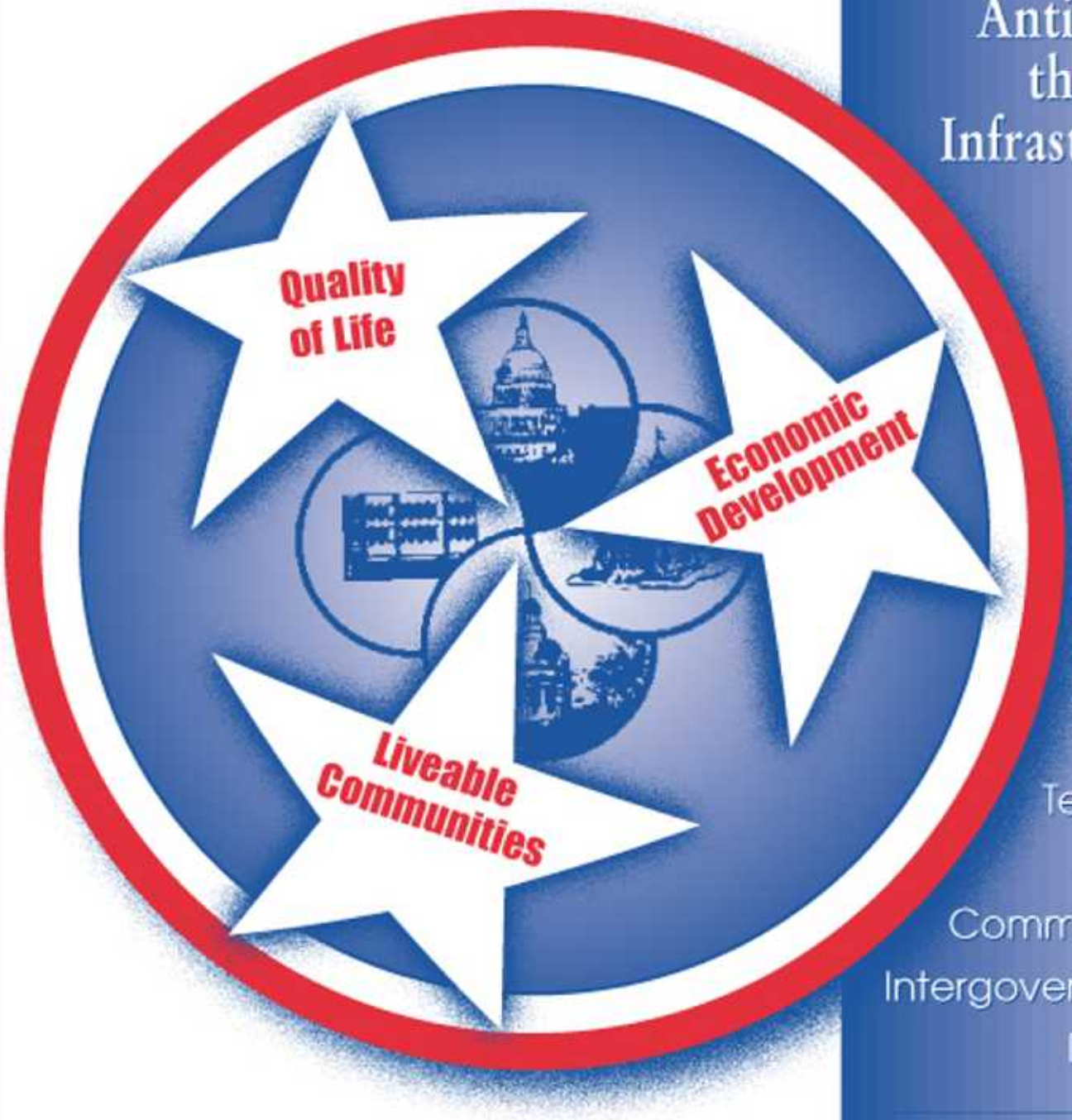
A Commission Report to the 102nd General Assembly

BUILDING TENNESSEE'S TOMORROW

Anticipating the State's Infrastructure Needs



Tennessee Advisory Commission on Intergovernmental Relations

March 2002

State of Tennessee
Tennessee Advisory Commission on Intergovernmental Relations

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March 2002

The Honorable John S. Wilder
Speaker of the Senate

The Honorable Jimmy Naifeh
Speaker, House of Representatives

Members of the General Assembly

State Capitol
Nashville, TN 37243

Ladies and Gentlemen:

Transmitted herewith is the third in a series of reports on Tennessee's infrastructure needs by the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) pursuant to Public Chapter 817, Acts of 1996. That act requires the TACIR to compile and maintain an inventory of infrastructure needed in Tennessee and present these needs and associated costs to the General Assembly during its regular legislative session. The inventory, by law, is designed to support the development by state and local officials of goals, strategies and programs to

- improve the quality of life of all Tennesseans,
- support livable communities, and
- enhance and encourage the overall economic development of the state through the provision of adequate and essential public infrastructure.

This report represents the TACIR's continuing efforts to improve the inventory, the two primary examples being inclusion for the first time of needs identified by state agencies in capital budget requests submitted to the Governor and refinement of the county comparisons to exclude regional projects, thereby more accurately describing the differences across counties in relation to population. Each year, the TACIR staff and staff of the nine development districts who gather information for the inventory strive to improve accuracy and coverage. Evidence of this improvement is a decrease in the difference between reported costs and costs estimated from the inventory based on population, land area and fiscal data.

Future reports will focus on the new information included in the inventory such as funding availability and location in relation to boundaries established under the Growth Policy Act (Public Chapter 1101, Acts of 1998) as required by Public Chapter 672, Acts of 2000.

Sincerely,

Senator Robert Rochelle
Chairman

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Executive Summary

Adequate infrastructure is essential to economic growth, just as economic growth is essential to individual prosperity. Recognizing this, the Tennessee General Assembly charged the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) with developing and maintaining an inventory of the infrastructure needs "in order for the state, municipal and county governments of Tennessee to develop goals, strategies and programs which would

- improve the quality of life of its citizens,
- support livable communities, and
- enhance and encourage the overall economic development of the state."

[Public Chapter 817, Acts of 1996.]

This report is the third in a series that presents Tennessee's public infrastructure needs as reported by local officials and the first to include needs submitted by state agencies as part of their budget requests to the Governor. It covers the five-year period of July 2001 through June 2006 and provides two basic types of information: (1) needed infrastructure improvements and (2) the condition of existing elementary and secondary (K-12) public schools. It does not include highway construction projects identified by the Tennessee Department of Transportation (TDOT) except those reported by local officials. The full range of needs identified by state transportation officials will be included in a later report.

Reported Infrastructure Needs

Transportation & Utilities - $8.3 billion
Education - $4.8 billion
Health, Safety & Welfare - $4.4 billion
Recreation & Culture - $1.7 billion
Economic Development - $878 million
General Government - $353 million
Grand Total - $20.5 billion

The needs reported by state and local officials fall into the six broad categories shown in the sidebar below left. A number of conclusions may be drawn from the information included in the inventory:

◆ The total need for public infrastructure improvements for 2001 through 2006 is nearly $20.5 billion—including upgrading existing public schools to good condition—an increase in reported need of more than $6.8 billion (up nearly 50 percent) since the first inventory was published three years ago and an increase of about $2.3 billion (twelve percent) from the February 2001 report, which was based on an inventory begun two years earlier.

◆ Transportation and utilities remained the single largest category and had the second largest increase in estimate costs (from $7.4 billion of $8.3 billion) since the last report. That figure will increase with the addition of the TDOT highway projects that were not reported by local officials.

◆ The second largest category is education. This category had the largest increase in estimated costs (from $3.8 billion to 4.8 billion or more than 24 percent since the last report). The education category includes public post-secondary institutions, as well as public elementary and secondary schools. Because of the effort to include needs identified by state agencies, estimated post-secondary costs grew ten-fold, accounting for all of the increase in this broad category. Infrastructure improvements needed for the

public elementary and secondary school system actually declined, indicating that Tennessee's school systems may be starting to catch up with their needs.

◆ According to the Tennessee Department of Education, all schools met the required class-size standards for school year 2001-02. While they employed a sufficient number of teachers to meet that standard, based on TACIR staff analysis, they expect to need more than $1.3 billion statewide to provide adequate classrooms for all of those teachers.

◆ According to local government officials, nearly three-fourths of all public schools in Tennessee are in good or better condition. Nevertheless they estimate the total cost for infrastructure projects needed between fiscal years 2001 and 2006 at nearly $3.6 billion. This figure includes new school construction, system-wide needs, mandate compliance, facility upgrades and technology infrastructure needs for kindergarten through high school.

◆ State or federal mandates affect about 8.9 percent of all projects in the current inventory. The lower class sizes required by the Education Improvement Act (EIA) of 1992 may be responsible for about 38 percent of the infrastructure improvement costs reported by all local school officials based on specific cost information for existing public schools gathered as part of the inventory and estimates by TACIR staff of the proportion of new school construction costs attributable to the EIA. Federal mandates account for about one percent of the total reported for schools.

Highlights of New Initiatives

Over the coming months, TACIR staff will analyze and publish information about several new bits of information gathered about infrastructure needs in this most recent inventory:

◆ Availability of funds for reported needs:
- Local
- State
- Federal
- Other (donations, etc.)

◆ Driving force behind reported needs:
- Economic Development
- Community Enhancement
- Population Growth
- Public Health or Safety
- State or Federal Mandates
- Other (deferred maintenance, etc.)

◆ Relationship between infrastructure needs and population density and growth: Is there one? If so, what is it? Does it vary with how urban or rural an area is?

◆ Location of projects in relation to boundaries established pursuant to Tennessee's Growth Policy Act [Public Chapter 1101, Acts of 1998], including a review of estimated needs through the fiscal year 2021, the period covered by most of the initial growth plans adopted under PC 1101.

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Overview

Tennessee is a low-tax state, and Tennesseans like it that way. Our citizens prefer that goods and services be provided by the private sector if at all possible. Nevertheless, there are some projects essential to the common good that the private sector cannot or will not take on. And so government must pick them up. One of the most expensive things government must do is provide the infrastructure that supports the health and welfare of its citizens.

This report is the third in a series that presents Tennessee's public infrastructure needs. It covers the five-year period of July 2001 through June 2006 and provides two basic types of information as reported by local officials: (1) needed infrastructure improvements and (2) the condition of existing elementary and secondary (K-12) public schools. The projects reported by state and local officials fall into six broad categories:

Table 1. Summary of Reported Needed Infrastructure Improvements Five-year Period July 2001 through June 2006[1]

Category[2]	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation & Utilities	1,356	21.0%	$ 8,320,311,820	40.7%
Education[3]	1,635	25.3%	4,779,475,405	23.4%
Health, Safety & Welfare	2,142	33.1%	4,408,005,642	21.6%
Recreation & Culture	826	12.8%	1,712,485,731	8.4%
Economic Development	239	3.7%	878,112,513	4.3%
General Government	267	4.1%	352,856,407	1.7%
Grand Total	**6,465**	**100.0%**	**$20,451,247,518**	**100.0%**

These needs represent the best estimates that state and local officials could provide and do not represent only what they anticipate being able to afford. Additional information was gathered in the most recent inventory about availability and sources of funds. Preliminary analysis indicates that just under half of the funding necessary is expected to be available by the time these projects are needed. Nearly two-thirds of that funding is expected to come from local sources, about one-fifth is expected to come from state sources, one-tenth from federal sources and about two percent from various public-private partnerships or donations. This information will be reviewed and presented in greater depth in a later TACIR report.

1 For a complete listing of all reported needs by county and by public school system, see Appendices D and E.

2 A list of the types of projects included in the six general categories is shown in Table 3. Descriptions of the project types are included in the Glossary of Terms at the end of this report.

3 Includes improvements needed at existing schools. Number of projects includes the 1,283 schools for which needs were reported.

Why inventory public infrastructure needs?

The General Assembly proclaimed the value of public infrastructure in legislation enacted in 1996 when it deemed an inventory of those needs necessary "in order for the state, municipal and county governments of Tennessee to develop goals, strategies and programs which would

improve the quality of life of its citizens,

support livable communities, and

enhance and encourage the overall economic development of the state through the provision of adequate and essential public infrastructure."[4] The public infrastructure needs inventory on which this report is based was derived from surveys of local officials by staff of the state's developmental districts and information collected from the capital project budgets of state agencies. Local officials were asked to describe the needs they anticipated for the five-year period of July 2001 through June 2006, categorizing those needs by type of project and by stage of development. The Commission has relied entirely on state and local officials to determine the infrastructure needs of their constituents as envisioned by the public act.

"That mealy-mouthed word, infrastructure. It sticks to the roof of the mouth like peanut butter on white bread. But there is no level of human concern in America—race, economic fulfillment of the individual, fairness/equality, social justice, competitiveness, raising the national spirit and standards of living—that is not addressed, attended to, and ameliorated by the contribution that the infrastructure makes to our well-being."

Jim Lebenthal
Vice-Chair
Rebuild America Coalition

What infrastructure is included in the inventory?

For purposes of this report, based both on the direction provided in the public act and common usage, public infrastructure is defined as

capital facilities and land assets under public ownership or operated or maintained for public benefit.

Further, to be included in the inventory, infrastructure projects must not be considered normal or routine maintenance and must involve a capital cost of at least $50,000. This approach, dictated by the public act, is consistent with the characterization of capital projects adopted by the General Assembly for its annual budget.

Within these parameters, local officials are encouraged to report their needs as they relate to developing goals, strategies and programs to improve their communities. They are limited only by the very broad purposes for public infrastructure listed in the law. No independent assessment of need constrains their reporting. Further, for the current inventory, local officials were provided an opportunity to report whether projects were funded, and if so, from what source. Nevertheless, despite efforts to ensure that availability of funds played no role in whether needs were reported, it appears that in some cases local officials continue to understate their true needs and reported instead the infrastructure they plan to build or believe their tax base can support. As a result, it may again be useful to treat the inventory as a sample of statewide needs and use it to develop estimates for counties whose needs appear to be underreported. Some discussion of this type of analysis is included in this report; however, given the extensive amount of information gathered for the inventory, much more work could be done.

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4 Chapter No. 817, Public Acts of 1996. For more information about the enabling legislation, see Appendix A.

In addition, for the first time, the inventory includes capital projects requested by state agencies during the 2001-02 state budget cycle. The bulk of these projects are not expected to be funded because of the fiscal constraints currently facing the state. Most of them were not included in the Governor's recommended budget for this reason, but all are included in the current needs inventory. They include a wide array of needs representing each of the six major categories. Among the projects requested by state agencies are

- security and other health and safety needs at the state prisons—$28 million including $17 million for the Tennessee Correction Academy near Tullahoma;
- roof replacements and other major renovations at the National Guard Armories across the state—$11.7 million including $3.9 million for a soldier readiness center near New Tazewell;
- upgrades, renovations and additions to the campuses of the state's public higher education institutions—$1.1 billion including $651.0 million for new facilities at various campuses across the state;
- renovations and upgrades at the various youth development centers across the state—$15.4 million;
- renovations, upgrades and other improvements such as new cabins at the state parks and natural areas across the state—$37.3 million;
- renovations and upgrades at the state's special schools—a total of $16.1 million, half of which is needed to repair major structural problems in the cottages at the School for the Deaf in Knoxville; and
- major renovations and upgrades at the state's mental health institutes—$138.3 million including $77.4 million for the Lakeshore Mental Health Institute in Knoxville.

What have we learned about public infrastructure needs?

State and local officials report a total need for public infrastructure improvements for 2001 through 2006 of nearly $20.5 billion, including upgrading existing public schools to good condition. This represents an increase of $6.8 billion or almost 50 percent since the first inventory was published three years ago. Transportation and utilities represents the single largest category and the largest increase in estimated costs (from $5.3 billion to $8.3 billion). The second largest increase, however, was in the education category, which is attributable to two major efforts: first, the concerted effort made in 2000-01 by TACIR staff and development district staff, with the support of state education officials, to ensure that the needs of public schools were fully and consistently reported; and second, to the inclusion of public higher education needs reported by state officials in their 2001-02 budget requests submitted to the Governor. The total estimated cost for the education category, including non-K-12 education projects, increased 80 percent (from $2.7 billion to $4.8 billion).

Needs reported by local officials for public elementary and secondary school facilities declined by more than ten percent since the last report. The current inventory includes a total of just under $3.6 billion in needs, which is down almost $162 million from the last report. That report was based on an inventory begun two years earlier. The estimated costs reported for new school construction declined about $153 million (nine percent), which may indicate that Tennessee public school systems are beginning to catch up with their new school needs;

however, the estimated cost of improvements needed at existing schools increased almost $43 million, and the total for all public school facility needs remains significant at nearly 18 percent of all reported infrastructure needs.

The Education Improvement Act of 1992 (EIA) set a deadline of fall 2001 for the new standards to be met, and school systems across the state have been striving to meet them since 1992. According to the Tennessee Department of Education, all schools met the new class-size standards for school year 2001-02. While they employed a sufficient number of teachers to meet those standards, TACIR staff analysis of the projects indicates that more than $1.3 billion of the needs reported by local officials are required to provide adequate classrooms for all of those teachers. Most of that cost is reported as new school construction. (TACIR staff estimated the portion of the new school construction costs attributable to the EIA as described in Appendix F.)

Statistical analyses by TACIR staff indicate that the total statewide need could be as much as $22 billion rather than the $20.5 billion actually reported. This estimate is based on the greater of the amount actually reported for each county or the amount projected for the county if its costs were more in line with costs reported by all counties while taking into account such factors as population, population growth, the proportion of the population considered urban, property tax base, sales tax base, per capita income, and the development district for each county. All data was divided by the geographic area within each county so that counties of different sizes could be fairly compared. Based on several statistical analyses by TACIR staff, low reported infrastructure costs continue to appear to be related to relatively low tax bases and per capita income. In other words, some local officials may be reporting not their need, but what they believe their locality can realistically afford.

Projects in capital improvement plans continue to be far more likely to be under construction than are projects not included in those plans, which may indicate that a larger percentage of projects not included in plans cannot be funded. One of the questions asked on the general survey form is whether the project reported is included in a capital improvement plan.[5] More than 51 percent of the projects not included in plans were in the conceptual stage and nearly a third were in the planning and design stage. In contrast, 40 percent of projects reportedly in capital improvement plans were under construction at the time of the survey; only 20 percent were still in the conceptual stage.

State or federal mandates affect about 8.9 percent of all projects in the current inventory. Except in the case of existing public schools, it is not clear from the data gathered in the current inventory how much of the total estimated costs reported is attributable to state or federal mandates; however, the overall number of projects affected by mandates, such as the Americans with Disabilities Act, is relatively small. Specific cost information on the cost of mandates at existing public schools is gathered as part of the inventory. In addition, TACIR staff used student counts from 1992 through 2001 to estimate the proportion of new school construction costs attributable to the EIA. Combining both reported costs and TACIR estimates, state and federal mandates account for about 40 percent of all needs reported for Tennessee's public schools. Nearly all of that amount is related to providing classrooms for the teachers necessary to meet the lower class sizes required by the EIA. Federal mandates account for only one percent of the total reported for local schools.

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5 A copy of the form is included in Appendix C.

What else needs to be done?

Great strides have been made since the inception of the inventory to improve its coverage and quality. TACIR has tried to strike a balance between requiring sufficient information to satisfy the intent of the law and creating an impediment to local officials reporting their needs. By law, the inventory is required of TACIR, but it is not required of local officials. Local officials may decline to participate without penalty; similarly, they may provide only partial information, making comparisons across jurisdictions difficult.[6]

Since the passage of Public Chapter 817, the General Assembly has adopted a new growth policy act (Chapter No. 1101, Public Acts of 1998) and, further, has formally linked the two (Chapter No. 672, Public Acts 2000). TACIR is now directed to use the public infrastructure needs inventory as one element in monitoring implementation of the Growth Policy Act. This linkage requires two significant changes in the survey used to gather information for the inventory: Asking local officials to project their infrastructure needs over a twenty-year period and asking them to identify the locations of the projects they report in terms of the boundaries established pursuant to the growth policy act.[7] Estimating infrastructure needs over a twenty-year period is quite a challenge for local officials, and the information that can be derived from those projections is inherently less reliable than the information derived from the five-year reporting period of the first two inventories. Nevertheless, with staff support, the Commission will review progress toward implementing this aspect of Public Chapter 672 and recommend any changes that may be needed to meet the goals of the infrastructure inventory and the growth policy act. While this report focuses on the first five years of needs reported in the current inventory, the full 20-year data set will be reviewed over the next several months and presented in the context of the growth policy act.

Over the coming months, TACIR staff will also analyze and publish information about several new bits of information gathered about infrastructure needs in this most recent inventory.

Availability of funds for reported needs:

- Local
- State
- Federal
- Other (donations, etc.)

Driving force behind reported needs:

- Economic Development
- Community Enhancement
- Population Growth
- Public Health or Safety
- State or Federal Mandates
- Other (deferred maintenance, etc.)

Relationship between infrastructure needs and population density and growth:

- Is there one?
- If so, what is it?
- Does it vary with how urban or rural an area is?

Location of projects in relation to boundaries established pursuant to Tennessee's Growth Policy Act [Chapter No. 1101, Public Acts of 1998], including a review of estimated needs through the fiscal year 2021, the period covered by most of the initial growth plans adopted under PC 1101.

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6 For a brief summary of the history of the public infrastructure needs inventory project, see Appendix B.

7 Appendix A includes the relevant legislation.

Introduction: Basics of the Infrastructure Needs Inventory

The public infrastructure needs inventory is developed using two separate, but related inventory forms.[8] Both forms are used to gather information about needed infrastructure improvements; the second is also used to gather information about the condition of existing public school buildings, as well as the cost to meet all facilities mandates at the schools, put them in good condition and provide adequate technology infrastructure. Information about the need for new public school buildings and school-system-wide infrastructure improvements is gathered in the first form. This report begins with a statewide look at the information from both inventory forms and continues with a closer look at school systems.

In addition to gathering information from local officials, TACIR staff incorporated capital improvement requests submitted by state officials to the Governor's Office into the current inventory. Information reported in the inventory is based on the judgment of state and local officials. In many cases, information is found in the capital improvement programs of local governments. In order to be included in the inventory, projects reported by local officials must be recorded on the forms provided by TACIR. Both forms—the general form and the form for existing schools—include questions about the status of the projects reported and their relationship to state and federal mandates. Project status may be

- conceptual—an infrastructure need with an estimated cost, but not yet in the process of being planned or designed,
- planning and design—development of a set of specific drawings or activities necessary to complete a project identified as an infrastructure need, or
- construction—actual execution of a plan or design developed to complete or acquire a project identified as an infrastructure need.

Every project included in the inventory for this report was in one of these three phases during the five-year period of July 2001 through June 2006. Because the source of information from state agencies was their capital budget requests for 2001-02, all of those projects were recorded as conceptual. Each project was required to have either a beginning or an ending date within that period and an estimated capital cost of at least $50,000.

In the context of the public infrastructure needs inventory, the term mandate is defined as *any rule, regulation, or law originating from the federal or state government that affects the cost of a project.*[9] The most commonly reported mandates relate to the Americans with Disabilities Act (ADA), asbestos, lead, radon, underground storage tanks and the Education Improvement Act (EIA). The EIA mandate is to reduce the number of students in each public school classroom by an overall average of about 4.5. That mandate became effective in fall 2001, and Tennessee public schools had been working toward it since the passage of the EIA in 1992.

Mandates affect only 8.9% of all reported projects, but account for 39.5% of the total needs reported for public school facilities—nearly all of that is related to the EIA.

8 Both forms are included in Appendix C.
9 See the Glossary of Terms at the end of this report.

Except in the case of existing public schools, the inventory does not include estimates of the cost to comply with mandates, only whether the need was the result of a mandate; therefore, mandates themselves are not analyzed here except to report the number of projects with aspects related to mandates. Even in the case of public schools, aside from the EIA, the cost reported to TACIR as part of the public infrastructure needs inventory is relatively small at less than two percent of the total.

Reported Infrastructure Needs Statewide

Reported infrastructure needs have grown 50 percent since the 1998 inventory.

Local officials report a total need for public infrastructure improvements for 2001 through 2006 of more than $20.5 billion, including the estimated cost of upgrading existing public schools to good condition. This represents an increase of more than $6.8 billion since the first inventory was published three years ago. Transportation and utilities represents the single largest category and the largest increase in estimated cost (from under $5.3 billion to over $8.3 billion). The general government category declined, which reflects a refinement of the project type definitions and reporting.[10]

The second largest increase was in the education category (from $2.7 billion to $4.8 billion). This remarkable 80 percent increase is attributable primarily to two efforts: First, TACIR staff launched a campaign in calendar year 2000, with the support of the Tennessee Board and Department of Education, to work with development district staff and school personnel across the state to ensure that the needs of public schools were fully and consistently reported. This campaign produced a dramatic increase in the need reported by local officials for new public elementary and secondary schools and system-wide needs (from $784 million to more than $1.8 billion) between the first and second reported inventories. Second, the current inventory includes public post-secondary needs reported by state officials in their 2001-02 budget requests submitted to the Governor. This latter effort is part of an overall effort to include all infrastructure needs identified by state officials in the inventory.

Table 2. Comparison of Estimated Cost of Needed Infrastructure Improvements 1998 Inventory vs. 2001 Inventory[11]

Category[12]	Reported Cost		
	July 1997 through June 2002	July 2001 through June 2006	Difference
Transportation & Utilities	$ 5,266,418,254	$ 8,320,311,820	58.0%
Education[13]	2,652,181,076	4,779,475,405	80.2%
Health, Safety & Welfare	3,669,316,318	4,408,005,642	20.1%
Recreation & Culture	885,965,741	1,712,485,731	93.3%
Economic Development	620,462,264	878,112,513	41.5%
General Government	580,851,556	352,856,407	-39.3%
Grand Total	**$ 13,675,195,209**	**$20,451,247,518**	**49.5%**

10 Over the past two years, TACIR has shifted more resources to the infrastructure inventory making it possible to improve oversight and quality control. As a result, a great deal more attention was given to reviewing the projects included in the inventory to ensure complete and accurate reporting. In addition, the current inventory allows cross-categorization of projects. For example, rail spurs for industrial sites may be identified as both transportation and industrial site projects. Such projects were placed in the more specific category (in this example, that would be industrial sites and parks), which may account for some of the increase in the economic development category.

11 For complete listings of all reported needs by county and by public school system, see Appendices D and E.

12 For more detail on the categories, see Table 3 on page 11.

13 Includes improvements needed at existing schools.

Transportation, education, and water and wastewater dominate statewide needs.

As shown in Figure 1 below and in Table 3 opposite, three types of projects within the six broad categories presented in Table 2 dominate reported needs. Transportation needs alone represent around 35 percent of the total at $7.1 billion. Needs reported for Tennessee's public school systems follow at a total of nearly $3.6 billion or about 18 percent of the total. Those two types of projects combined with the water and wastewater projects represent nearly two-thirds of the total reported needs.

Top Concerns of Tennessee's Civil Engineers
January 2001

- **Water infrastructure**
- **Roads and bridges**
- **Schools**

American Society of Civil Engineers
www.asce.org/

The total need reported for certain other types of projects may be somewhat misleading to the extent that projects in the economic development category are not stand alone, self-contained projects, but require the support of projects in other categories like water and wastewater, transportation, or other utilities. In order to more accurately report the cost of the various types of projects included in the inventory, TACIR staff revised the inventory form to allow cross-categorization of projects as both business district development and storm water, for example. This kind of two-dimensional reporting facilitates more complete analysis of the costs of different types of infrastructure improvements. For purposes of this report, projects that directly support economic development, such as rail spurs for industrial sites, have been placed in the economic development category. This change in reporting accounts for some of the increase in that category. TACIR staff will continue to review the two-dimensional information for presentation in a later report.

Figure 1. Percent of Total Reported Cost of Infrastructure Needs by Type of Project

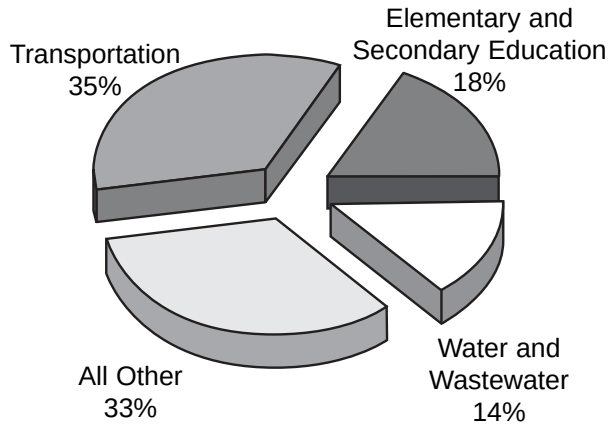


Table 3. Total Number & Estimated Cost of Needed Infrastructure

Improvements, Five-year Period July 2001 through June 2006[14]

Category and Project Type[15]	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation & Utilities	**1,356**	**21.0%**	**$ 8,320,311,820**	**40.7%**
Transportation	1,216	18.8%	7,135,115,174	35.3%
Other Utilities	97	1.5%	860,450,971	4.3%
Navigation	2	0.0%	308,000,000	1.5%
Telecommunications	41	0.6%	16,745,675	0.1%
Education	**1,635**	**25.3%**	**$ 4,779,475,405**	**23.4%**
Existing School Improvements	1,283	19.8%	1,907,758,599	9.3%
New Public School Construction	169	2.6%	1,634,880,050	8.0%
Non K-12 Education[16]	153	2.4%	1,197,562,244	5.9%
School System-wide Needs	30	0.5%	39,274,512	0.2%
Health, Safety & Welfare	**2,142**	**33.1%**	**$ 4,408,005,642**	**21.6%**
Water and Wastewater	1,451	22.4%	2,926,612,999	14.3%
Law Enforcement	182	2.8%	605,389,016	3.0%
Storm Water	103	1.6%	312,564,707	1.5%
Public Health Facilities	116	1.8%	266,040,397	1.3%
Fire Protection	158	2.4%	118,290,934	0.6%
Housing	48	0.7%	92,352,882	0.5%
Solid Waste	84	1.3%	86,754,707	0.4%
Recreation & Culture	**826**	**12.8%**	**$ 1,712,485,731**	**8.4%**
Recreation	628	9.7%	862,842,800	4.2%
Libraries and Museums	97	1.5%	520,600,319	2.5%
Community Development	101	1.6%	329,042,612	1.6%
Economic Development	**239**	**3.7%**	**$ 878,112,513**	**4.3%**
Business District Development	64	1.0%	534,561,300	2.6%
Industrial Sites and Parks	175	2.7%	343,551,213	1.7%
General Government	**267**	**4.1%**	**$ 352,856,407**	**1.7%**
Public Buildings	212	3.3%	277,366,707	1.4%
Other Facilities	45	0.7%	67,436,500	0.3%
Property Acquisition	10	0.2%	8,053,200	0.0%
Grand Total	**6,465**	**100.0%**	**$ 20,451,247,518**	**100.0%**

14 For complete listings of all reported needs by county and by public school system, see Appendices D and E.

15 Descriptions of the project types are included in the Glossary of Terms at the end of the report.

16 K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. Non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report.

City ownership dominates four of the six major categories of need.

Although most of the projects in the public infrastructure needs inventory are reported by local officials, they may ultimately be owned or controlled by a variety of entities, including the state or federal governments or utility districts. Not surprisingly, cities will own or control two-thirds or more of the infrastructure needs in monetary terms reported in four of the six major categories. The two exceptions are the education category, nearly half of which involves counties, and the transportation and utilities category, nearly half of which belongs to the state.

Problems with Dams May Become a Larger Concern

- **More than 44% of the lock chambers in the nation's dams are over 50 years of age.**
- **Many locks are undersized for modern commercial barge movements.**

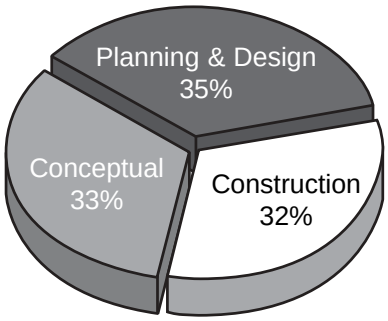
American Society of Civil Engineers
www.asce.org/

As shown in Table 4, nearly 61 percent of all education costs belong to counties and 25 percent belong to the state. State costs primarily involve public higher education institutions, which were not included in previous inventories. More than half of all transportation needs reported by local officials involve state ownership. The inclusion of all state transportation needs, which will be done in a later report, will push this figure higher. More than three-fourths of the utility costs, other than water or wastewater and telecommunications, involve special districts, which also play a significant role in water and wastewater projects. A single federal dam project reported by Hamilton County accounts for more than 97 percent of the navigation costs, and a power plant at Arnold Engineering Development Center near Tullahoma accounts for most of the remaining federal costs reported.

Stage of development varies with type of project.

As shown in Figure 2, infrastructure needs in terms of estimated costs are distributed fairly evenly among the three different stages of development, with slightly more in the conceptual stage and slightly less in the construction stage. The balance has shifted toward the conceptual stage since the last inventory because of the inclusion of state capital projects requested for 2001-02. No capital projects funded by the state's general fund were approved during the 2001-02 fiscal year. As Table 5 illustrates, the distribution varies with different types of projects. More than two-thirds of needed education improvements are in the conceptual stage. This figure is strongly affected by the state's higher education projects, but even when only new elementary and secondary schools are considered, nearly half are in the conceptual stage. Information about existing schools is not included in this analysis because there are numerous small projects in varying stages of development reported for existing schools, making it impossible to identify a single stage for each school. Infrastructure improvements related to economic development are more heavily weighted toward the planning and design stage than most other types of projects with less than twenty percent in terms of cost under construction and less than 25 percent still in the conceptual stage.

Figure 2. Percent of Total Reported Cost of Infrastructure Needs by Stage of Development*



* Excludes needs reported by state officials.

Table 4. Total Estimated Cost [in millions] of Needed Infrastructure Improvements by Project Type and Level of Government—
Five-year Period July 2001 Through June 2006

Category and Project Type[17]	City		County		State		Federal		Joint		Other	
Transportation & Utilities	**$1,926.0**	**23.1%**	**$ 801.6**	**9.6%**	**$4,024.2**	**48.4%**	**$575.0**	**6.9%**	**$530.6**	**6.4%**	**$ 463.0**	**5.6%**
Transportation	1,790.8	25.1%	784.9	11.0%	4,024.2	56.4%	-	0.0%	528.7	7.4%	6.5	0.1%
Other Utilities	122.0	14.2%	8.3	1.0%	-	0.0%	275.0	32.0%	0.3	0.0%	455.0	52.9%
Navigation	-	0.0%	8.0	2.6%	-	0.0%	300.0	97.4%	-	0.0%	-	0.0%
Telecommunications	13.3	79.2%	0.4	2.3%	-	0.0%	-	0.0%	1.6	9.6%	1.5	9.0%
Education	**$ 643.4**	**13.5%**	**$2,909.4**	**60.9%**	**$1,196.6**	**25.0%**	**$ -**	**0.0%**	**$ 9.1**	**0.2%**	**$ 21.0**	**0.4%**
Existing School Improvements	329.3	17.3%	1,567.6	82.2%	-	0.0%	-	0.0%	-	0.0%	10.9	0.6%
New Public School Construction	301.7	18.5%	1,326.9	81.2%	-	0.0%	-	0.0%	-	0.0%	6.2	0.4%
Non K-12 Education[18]	0.4	0.0%	4.7	0.4%	1,180.5	98.6%	-	0.0%	8.9	0.7%	3.2	0.3%
School System-wide Needs	12.0	30.6%	10.2	26.0%	16.1	41.0%	-	0.0%	0.3	0.6%	0.7	1.7%
Health, Safety & Welfare	**$2,738.4**	**62.1%**	**$ 614.4**	**13.9%**	**$ 283.7**	**6.4%**	**$ -**	**0.0%**	**$222.9**	**5.1%**	**$ 548.6**	**12.4%**
Water & Wastewater	2,022.4	69.1%	151.5	5.2%	-	0.0%	-	0.0%	211.5	7.2%	541.3	18.5%
Law Enforcement	184.8	30.5%	285.4	47.1%	132.0	21.8%	-	0.0%	3.1	0.5%	-	0.0%
Storm Water	270.6	86.6%	40.5	13.0%	-	0.0%	-	0.0%	1.5	0.5%	-	0.0%
Public Health Facilities	29.3	11.0%	84.9	31.9%	151.7	57.0%	-	0.0%	0.2	0.1%	-	0.0%
Fire Protection	98.3	83.1%	10.7	9.0%	-	0.0%	-	0.0%	5.6	4.7%	3.8	3.2%
Housing	76.8	83.1%	11.1	12.1%	-	0.0%	-	0.0%	1.0	1.1%	3.4	3.7%
Solid Waste	56.3	64.9%	30.4	35.0%	-	0.0%	-	0.0%	-	0.0%	0.1	0.1%
Recreation & Culture	**$1,147.1**	**67.0%**	**$ 219.4**	**12.8%**	**$ 217.4**	**12.7%**	**$ 2.8**	**0.2%**	**$123.5**	**7.2%**	**$ 2.3**	**0.1%**
Recreation	600.6	69.6%	118.5	13.7%	96.3	11.2%	2.8	0.3%	42.4	4.9%	2.3	0.3%
Libraries & Museums	307.1	59.0%	55.6	10.7%	95.8	18.4%	-	0.0%	62.1	11.9%	-	0.0%
Community Development	239.4	72.7%	45.3	13.8%	25.3	7.7%	-	0.0%	19.1	5.8%	-	0.0%
Economic Development	**$ 598.4**	**68.1%**	**$ 132.9**	**15.1%**	**$ -**	**0.0%**	**$ -**	**0.0%**	**$ 93.9**	**10.7%**	**$ 52.9**	**6.0%**
Business District Development	504.1	94.3%	19.2	3.6%	-	0.0%	-	0.0%	10.7	2.0%	0.6	0.1%
Industrial Sites & Parks	94.3	27.4%	113.7	33.1%	-	0.0%	-	0.0%	83.2	24.2%	52.4	15.2%
General Government	**$ 262.9**	**74.5%**	**$ 71.7**	**20.3%**	**$ 5.2**	**1.5%**	**$ 1.0**	**0.3%**	**$ 10.4**	**2.9%**	**$ 1.7**	**0.5%**
Public Buildings	204.4	73.7%	56.6	20.4%	5.2	1.9%	1.0	0.4%	10.1	3.6%	-	0.0%
Other Facilities	50.5	74.9%	15.0	22.3%	-	0.0%	-	0.0%	0.3	0.4%	1.7	2.4%
Property Acquisition	8.0	99.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	0.1	1.0%
	$7,316.2	**35.8%**	**$4,749.3**	**23.2%**	**$5,727.1**	**28.0%**	**$578.8**	**2.8%**	**$990.4**	**4.8%**	**$1,089.4**	**5.3%**

17 Descriptions of the project types are included in the Glossary of Terms at the end of this report.

18 K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. Non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report.

Table 5. Needed Infrastructure Improvements by Project Type and Stage of Development
Five-year Period July 2001 Through June 2006[19]

Category and Project Type[20]	Conceptual				Planning & Design				Construction			
	Number		Cost [in millions]		Number		Cost [in millions]		Number		Cost [in millions]	
Transportation & Utilities	**479**	**35.3%**	**$2,688**	**32.3%**	**560**	**41.3%**	**$3,421**	**41.1%**	**317**	**23.4%**	**$2,212**	**26.6%**
Transportation	424	34.9%	2,639	37.0%	515	42.4%	2,769	38.8%	277	22.8%	1,728	24.2%
Other Utilities	34	35.1%	35	4.0%	32	33.0%	345	40.1%	31	32.0%	481	55.9%
Navigation	1	50.0%	8	2.6%	1	50.0%	300	97.4%	-	0.0%	-	0.0%
Telecommunications	20	48.8%	6	38.2%	12	29.3%	7	43.7%	9	22.0%	3	18.1%
Education	**248**	**70.5%**	**$1,918**	**66.8%**	**56**	**15.9%**	**$437**	**15.2%**	**48**	**13.6%**	**$517**	**18.0%**
New Public School Construction	86	50.9%	804	49.2%	46	27.2%	428	26.2%	37	21.9%	403	24.6%
Non K-12 Education[21]	141	92.2%	1,080	90.2%	6	3.9%	6	0.5%	6	3.9%	111	9.3%
School System-wide Needs	21	70.0%	34	86.1%	4	13.3%	3	6.2%	5	16.7%	3	6.8%
Health, Safety & Welfare	**1,012**	**47.2%**	**$1,641**	**37.2%**	**673**	**31.4%**	**$1,122**	**25.4%**	**457**	**21.3%**	**$1,645**	**37.3%**
Water & Wastewater	624	43.0%	1,042	35.6%	485	33.4%	707	24.2%	342	23.6%	1,177	40.2%
Law Enforcement	119	65.4%	283	46.7%	46	25.3%	209	34.5%	17	9.3%	114	18.8%
Storm Water	34	33.0%	42	13.5%	42	40.8%	99	31.6%	27	26.2%	172	54.9%
Public Health Facilities	84	72.4%	167	62.7%	13	11.2%	34	12.6%	19	16.4%	66	24.6%
Fire Protection	89	56.3%	54	45.8%	54	34.2%	44	36.9%	15	9.5%	21	17.4%
Housing	23	47.9%	29	31.4%	8	16.7%	7	7.4%	17	35.4%	57	61.2%
Solid Waste	39	46.4%	24	27.5%	25	29.8%	23	26.6%	20	23.8%	40	45.9%
Recreation & Culture	**407**	**49.3%**	**$562**	**32.8%**	**253**	**30.6%**	**$441**	**25.8%**	**166**	**20.1%**	**$709**	**41.4%**
Recreation	314	50.0%	380	44.0%	190	30.3%	285	33.0%	124	19.7%	198	23.0%
Libraries & Museums	47	48.5%	129	24.8%	27	27.8%	75	14.4%	23	23.7%	316	60.7%
Community Development	46	45.5%	53	16.2%	36	35.6%	81	24.6%	19	18.8%	195	59.2%
Economic Development	**128**	**53.6%**	**$215**	**24.5%**	**63**	**26.4%**	**$490**	**55.8%**	**48**	**20.1%**	**$173**	**19.7%**
Business District Development	34	53.1%	78	14.5%	18	28.1%	411	76.9%	12	18.8%	46	8.5%
Industrial Sites & Parks	94	53.7%	137	40.0%	45	25.7%	78	22.8%	36	20.6%	128	37.2%
General Government	**132**	**49.4%**	**$112**	**31.9%**	**84**	**31.5%**	**$143**	**40.4%**	**51**	**19.1%**	**$98**	**27.7%**
Public Buildings	106	50.0%	85	30.6%	60	28.3%	101	36.3%	46	21.7%	92	33.1%
Other Facilities	20	44.4%	26	38.7%	22	48.9%	39	57.3%	3	6.7%	3	4.0%
Property Acquisition	6	60.0%	2	20.6%	2	20.0%	3	41.2%	2	20.0%	3	38.2%
Grand Total	**2,406**	**46.4%**	**$7,137**	**38.5%**	**1,689**	**32.6%**	**$6,053**	**32.6%**	**1,087**	**21.0%**	**$5,354**	**28.9%**

19 For complete listings of costs by project type, stage of development and county, see Appendix 3.
20 Descriptions of the project types are included in the Glossary of Terms at the end of this report. Does not include existing public schools.
21 K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. Non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report.

Projects included in capital improvement programs are far more likely to be under construction.

Excluding improvements needed at existing schools, more than half of the infrastructure needs reported for July 2001 through June 2006 were part of some governmental entity's official capital improvement program (CIP). As shown in Table 6, more than half of the projects not part of a CIP were in the conceptual stage, less than a third were in planning and design and less than 20 percent were under construction. In contrast, projects reported as being listed in capital improvement programs were about evenly split between the planning and design stage and the construction stage; only 20 percent were still in the conceptual stage.

Table 6. Estimated Cost of Needed Infrastructure Improvements (in Millions)* by Project Stage and Inclusion in Capital Improvement Programs[22]

	Project Included in Capital Improvement Program?						
Project Stage	**Unknown**		**No**		**Yes**		**Grand Total**
Conceptual	$ 5.0	24.3%	$ 3,502.0	51.4%	$ 2,049.6	20.2%	$ 5,556.7
Planning & Design	-	0.0%	2,035.4	29.9%	4,017.4	39.6%	6,052.9
Construction	15.7	75.7%	1,271.5	18.7%	4,066.5	40.1%	5,353.7
Grand Total	**$20.7**	**100.0%**	**$ 6,809.0**	**100.0%**	**$10,133.6**	**100.0%**	**$16,963.3**

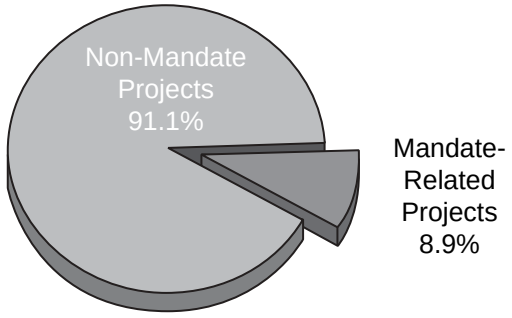
*Does not include improvements at existing schools or needs reported by state officials.

This information raises the question whether projects included in CIPs are more likely to be funded. The current inventory includes information about whether funds are available for each project, and that information will be reviewed for inclusion in a later report.

State or federal mandates affect nearly nine percent of all projects and account for forty percent of elementary and secondary school costs.

It is not clear from the data gathered in the current inventory how much of the total estimated costs reported is attributable to state or federal mandates; however, the overall number of projects affected by mandates, such as the Americans with Disabilities Act, is a relatively small portion, 8.9 percent, of the total number of projects in the inventory. Collectively, schools account for over 83 percent of the total number of projects affected by facilities mandates and were far more likely to be associated with mandates than any other type of project.[23] As shown in Table 7, schools represent the top three types of projects with mandates; storm water, solid waste and water-and-waste-water projects ranked fourth, fifth and sixth.

Figure 3. Percent of Infrastructure Projects Involving Facilities Mandates



[22] For information by county on percent of reported costs included in capital improvement plans, see Appendix D.
[23] Projects reported for existing schools were aggregated so that each school is counted only once in this figure.

Table 7. Percent of Projects Reported to Involve Facilities Mandates by Type of Project, Five-year Period July 2001 through June 2006

Type of Project[24]	Number of Projects or Schools Reported[25]	Projects or Schools Affected by Mandates	
		Number	Percent
Existing School Improvements	1,283	459	35.8%
LEA System-wide Need	30	2	6.7%
K-12 New School Construction	169	14	8.3%
Storm Water	103	7	6.8%
Solid Waste	84	4	4.8%
Water and Wastewater	1,451	61	4.2%
Public Buildings	212	6	2.8%
Other Facilities	45	1	2.2%
Other Utilities	97	2	2.1%
Business District Development	64	1	1.6%
Law Enforcement	182	2	1.1%
Libraries and Museums	97	1	1.0%
Public Health Facilities	116	1	0.9%
Transportation	1,216	10	0.8%
Recreation	628	4	0.6%
Fire Protection	158	1	0.6%
Industrial Sites and Parks	175	0	0.0%
Non K-12 Education	153	0	0.0%
Community Development	101	0	0.0%
Housing	48	0	0.0%
Telecommunications	41	0	0.0%
Property Acquisition	10	0	0.0%
Navigation	2	0	0.0%
Grand Total	**6,465**	**576**	**8.9%**

TACIR staff estimate that 39.5 percent of all improvement costs reported for schools were the result of state or federal mandates,[26] with nearly all of that cost attributable to the Education Improvement Act of 1992.[27] (See Table 8.) This act was passed by the General Assembly in 1992 and required a substantial reduction in the class sizes throughout all grades in public schools by fall 2001.[28] All schools met that requirement; however, many continue to need facilities improvements to house the additional number of teachers required.

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[24] Descriptions of the project types are included in the Glossary of Terms at the end of the report.
[25] Each public school campus is counted as one project.
[26] Patterns of growth in student counts were analyzed to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather than to enrollment growth or replacement of existing schools.
[27] Chapter No. 535, Public Acts of 1992.
[28] Tennessee Code Annotated, § 49-3-353.

Table 8. Estimated Cost of Facilities Mandates Reported for Elementary and Secondary Schools, Five-year Period July 2001 through June 2006

Type of Need	Estimated Cost [in millions]	Percent of Total
State & Federal Mandates	**$ 1,407.0**	**39.5%**
EIA Costs at New and Existing Schools	1,352.5	37.9%
Other State Mandates	14.8	0.4%
Federal Mandates	39.7	1.1%
Non-mandated Needs	**$ 2,158.9**	**60.5%**
Statewide Total	**$ 3,565.8**	**100.0%**

Table 9. Largest and Smallest Reported Infrastructure Improvement Needs by County, Excluding Projects Identified as Regional Five-year Period July 2001 through June 2006

Total Estimated Rank	County	Percent of Cost	2000 State Total	Percent of Population	Cost Per State Total	Capita
1	Davidson	$ 2,772,467,905	19.2%	569,891	10.0%	$4,865
2	Shelby	1,976,869,579	13.7%	897,472	15.8%	$2,203
3	Knox	1,506,710,455	10.4%	382,032	6.7%	$3,944
4	Rutherford	569,704,507	3.9%	182,023	3.2%	$3,130
5	Hamilton	491,221,305	3.4%	307,896	5.4%	$1,595
6	Williamson	488,697,057	3.4%	126,638	2.2%	$3,859
7	Sumner	301,269,774	2.1%	130,449	2.3%	$2,309
8	Montgomery	281,654,180	2.0%	134,768	2.4%	$2,090
9	Wilson	263,525,000	1.8%	88,809	1.6%	$2,967
10	Sevier	244,213,967	1.7%	71,170	1.3%	$3,431
Top Ten Subtotal		$ 8,896,333,729	61.6%	2,891,148	50.8%	$3,077
All Others[29]		$ 5,452,269,494	37.8%	2,654,148	46.7%	$2,054
86	Houston	14,107,000	0.1%	8,088	0.1%	$1,744
87	Crockett	13,415,000	0.1%	14,532	0.3%	$ 923
88	Jackson	12,873,800	0.1%	10,984	0.2%	$1,172
89	Weakley	12,057,000	0.1%	34,895	0.6%	$ 346
90	Sequatchie	10,610,750	0.1%	11,370	0.2%	$ 933
91	Hancock	7,969,500	0.1%	6,786	0.1%	$1,174
92	Moore	6,500,000	0.0%	5,740	0.1%	$1,132
93	Lauderdale	6,498,000	0.0%	27,101	0.5%	$ 240
94	Benton	3,928,164	0.0%	16,537	0.3%	$ 238
95	Lake	2,536,000	0.0%	7,954	0.1%	$ 319
Bottom Ten Subtotal		$ 90,495,214	0.6%	143,987	2.5%	$ 628
Grand Total		**$14,439,098,437**	**100.0%**	**5,689,283**	**100.0%**	**$2,538**

[29] For information about the middle 75 counties, see Appendix D.

Reported Infrastructure Needs by County[30]

Infrastructure needs reported in the current inventory were identified as regional or multi-jurisdictional. This refinement facilitates comparisons across counties by excluding from county totals infrastructure needs that serve substantial numbers of non-residents. Examples include major transportation corridors designed to route traffic through the county to other destinations; colleges and universities; solid waste facilities that receive refuse from outside the county; and water treatment plants that serve multiple jurisdictions. Because these types of projects are excluded from the county-level analysis, the totals here will not match the totals elsewhere in this report.

Factors That May Explain Reported Infrastructure Needs

- Population
- Population gain
- Population density
- Land area
- Fiscal capacity or wealth—i.e., can we afford it?

The largest infrastructure needs are in counties with the largest population gains—smallest reported needs not so easily explained.

With regional projects factored out, the ten counties reporting the largest infrastructure needs in dollar terms are the ten counties with the largest population gains during the 1990s. Eight of those ten counties are also among the ten largest in 2000. The bottom ten counties are not as easily explained. Only three of the ten counties reporting the least needs are among the ten with the least population gain, and only five of them are among the ten with the smallest 2000 populations. Compare Tables 9, 11 and 14.

As with the last inventory, differences in reported needs cannot be fully explained without considering factors related to local fiscal capacity. TACIR staff analyzed the relationship between reported needs and possible explanatory factors including demographic and geographic factors, as well as fiscal factors. The factors are listed in the box at right. Fiscal capacity was measured in terms of tax base and per capita income. Tax base measures included total sales and taxable property value. Per capita income was included as a measure of the ability of county residents to afford higher or lower tax rates. Based on three separate but similar statistical analyses, population gain and the sales tax base play the most significant role of all of these factors across all 95 counties (see Table 10).

Table 10. Significance of Factors Affecting Reported Infrastructure Needs

	Number of Models in Which Factor Was Significant*		
Explanatory	**Highly Significant**	**Significant**	**Not Significant**
2000 Population	1	0	2
Population Gain	3	0	0
Population Density*	1	n/a	n/a
Taxable Sales	3	0	0
Taxable Property Value	2	0	1
Per Capita Income	2	0	1
Land Area*	1	n/a	n/a

* Total number of models was three. Density and land area were used to make counties more comparable, rather than as separate factors, in two of the three models.

30 For detailed information on each county, see Appendix D.

Higher costs per capita are associated with larger population gains.

As shown in Table 11, the cost per capita for the ten counties with the largest population gains exceeds that for the ten with the smallest gains by more than $1,400 ($3,077 versus $1,666) indicating that high growth comes at a price. While the top ten counties for the greatest population gains collectively report much higher than average needs per capita, only four of the ten (Davidson, Knox, Williamson and Sevier) are among the ten counties reporting the very highest needs per capita. (See Table 12.) The relationship between population gain and infrastructure needs per capita is not entirely clear from the inventory and bears further investigation.

Table 11. Infrastructure Improvement Needs Reported by Counties with the Largest and Smallest Population Gains, Excluding Projects Identified as Regional—Five-year Period July 2001 through June 2006

Rank	County	1990 Population	2000 Population	Population Gain	Total Estimated Cost	Cost Per Capita
1	Shelby	826,330	897,472	71,142	$ 1,976,869,579	$ 2,203
2	Rutherford	118,570	182,023	63,453	569,704,507	$ 3,130
3	Davidson	510,784	569,891	59,107	2,772,467,905	$ 4,865
4	Knox	335,749	382,032	46,283	1,506,710,455	$ 3,944
5	Williamson	81,021	126,638	45,617	488,697,057	$ 3,859
6	Montgomery	100,498	134,768	34,270	281,654,180	$ 2,090
7	Sumner	103,281	130,449	27,168	301,269,774	$ 2,309
8	Hamilton	285,536	307,896	22,360	491,221,305	$ 1,595
9	Wilson	67,675	88,809	21,134	263,525,000	$ 2,967
10	Sevier	51,043	71,170	20,127	244,213,967	$ 3,431
Top Ten Subtotal		**2,480,487**	**2,891,148**	**410,661**	**$ 8,896,333,729**	**$ 3,077**
All Others[31]		**2,290,349**	**2,685,016**	**394,667**	**$ 5,354,334,908**	**$ 1,994**
86	Moore	4,721	5,740	1,019	6,500,000	$ 1,132
87	Perry	6,612	7,631	1,019	17,640,000	$ 2,312
88	Grundy	13,362	14,332	970	29,082,800	$ 2,029
89	Lake	7,129	7,954	825	2,536,000	$ 319
90	Clay	7,238	7,976	738	20,480,000	$ 2,568
91	Obion	31,717	32,450	733	34,605,000	$ 1,066
92	Van Buren	4,846	5,508	662	28,455,000	$ 5,166
93	Pickett	4,548	4,945	397	14,320,000	$ 2,896
94	Haywood	19,437	19,797	360	26,841,500	$ 1,356
95	Hancock	6,739	6,786	47	7,969,500	$ 1,174
Bottom Ten Subtotal		**106,349**	**113,119**	**6,770**	**$ 188,429,800**	**$ 1,666**
Grand Total		**4,877,185**	**5,689,283**	**812,098**	**$14,439,098,437**	**$ 2,538**

31 For information about the middle 75 counties, see Appendix D.

Table 12. Population Factors for the Ten Counties Reporting Highest and Lowest Infrastructure Needs per Capita
Excluding Projects Identified as Regional, Five-year Period July 2001 Through June 2006

Rank	County	Population 1990	Population 2000	Population Change	Growth Rate	Land Area [square miles]	Population Density	Total Reported Cost	Cost Per Capita
1	Stewart	9,479	12,370	2,891	30.5%	458	27	$ 69,034,000	$ 5,581
2	Van Buren	4,846	5,508	662	13.7%	273	20	28,455,000	$ 5,166
3	Bedford	30,411	37,586	7,175	23.6%	474	79	186,961,000	$ 4,974
4	Davidson	510,784	569,891	59,107	11.6%	502	1,135	2,772,467,905	$ 4,865
5	Knox	335,749	382,032	46,283	13.8%	508	751	1,506,710,455	$ 3,944
6	Hardin	22,633	25,578	2,945	13.0%	578	44	99,975,087	$3,909
7	Williamson	81,021	126,638	45,617	56.3%	583	217	488,697,057	$ 3,859
8	Marion	24,860	27,776	2,916	11.7%	500	56	99,829,840	$ 3,594
9	Sevier	51,043	71,170	20,127	39.4%	592	120	244,213,967	$3,431
10	Loudon	31,255	39,086	7,831	25.1%	229	171	132,207,225	$ 3,382
Top Ten Subtotal		**1,102,081**	**1,297,635**	**195,554**	**17.7%**	**4,697**	**276**	**$ 5,628,551,536**	**$ 4,338**
All Others[32]		**3,567,198**	**4,147,306**	**580,108**	**16.3%**	**32,280**	**128**	**$ 8,671,776,866**	**$ 2,091**
86	Sequatchie	8,863	11,370	2,507	28.3%	266	43	10,610,750	$ 933
87	Crockett	13,378	14,532	1,154	8.6%	265	55	13,415,000	$ 923
88	Carroll	27,514	29,475	1,961	7.1%	599	49	26,328,148	$ 893
89	White	20,090	23,102	3,012	15.0%	377	61	17,125,000	$ 741
90	Hardeman	23,377	28,105	4,728	20.2%	668	42	20,748,000	$ 738
91	Tipton	37,568	51,271	13,703	36.5%	459	112	25,523,973	$ 498
92	Weakley	31,972	34,895	2,923	9.1%	580	60	12,057,000	$ 346
93	Lake	7,129	7,954	825	11.6%	163	49	2,536,000	$ 319
94	Lauderdale	23,491	27,101	3,610	15.4%	470	58	6,498,000	$ 240
95	Benton	14,524	16,537	2,013	13.9%	395	42	3,928,164	$ 238
Bottom Ten Subtotal		**207,906**	**244,342**	**36,436**	**17.5%**	**4,243**	**58**	**$ 138,770,035**	**$ 568**
Grand Total		**4,877,185**	**5,689,283**	**812,098**	**16.7%**	**41,220**	**138**	**$14,439,098,437**	**$ 2,538**

32 For information about the middle 75 counties, see Appendix D.

High growth rates do not necessarily mean high costs per capita.

Much attention is given to county growth rates, and infrastructure costs are often thought to be higher in areas with high growth rates. However, only two counties, Williamson and Sevier, are among both the ten reporting the greatest infrastructure needs per capita and the ten with the highest growth rates. Compare Tables 12 and 13.

Table 13. Cost of Needed Infrastructure Improvements Reported by the Ten Counties with the Highest and Lowest Population Growth Rates —Excluding Projects Identified as Regional—Five-year Period July 2001 through June 2006

Rank	County	1990 Population	2000 Population	Population Gain	Total Estimated Cost	Cost Per Capita
1	Williamson	81,021	126,638	56.3%	$ 488,697,057	$ 3,859
2	Rutherford	118,570	182,023	53.5%	569,704,507	$ 3,130
3	Sevier	51,043	71,170	39.4%	244,213,967	$ 3,431
4	Meigs	8,033	11,086	38.0%	22,375,000	$ 2,018
5	Tipton	37,568	51,271	36.5%	25,523,973	$ 498
6	Cumberland	34,736	46,802	34.7%	120,194,351	$ 2,568
7	Jefferson	33,016	44,294	34.2%	56,551,041	$ 1,277
8	Montgomery	100,498	134,768	34.1%	281,654,180	$ 2,090
9	Hickman	16,754	22,295	33.1%	64,460,000	$ 2,891
10	Cheatham	27,140	35,912	32.3%	86,305,500	$ 2,403
Top Ten Subtotal		**508,379**	**726,259**	**42.9%**	**$ 1,959,679,576**	**$ 2,698**
All Others[33]		**3,960,473**	**4,532,708**	**14.4%**	**$ 11,812,081,645**	**$ 2,606**
86	Grundy	13,362	14,332	7.3%	29,082,800	$ 2,029
87	Carroll	27,514	29,475	7.1%	26,328,148	$ 893
88	Dyer	34,854	37,279	7.0%	62,362,158	$ 1,673
89	Unicoi	16,549	17,667	6.8%	40,221,910	$ 2,277
90	Sullivan	143,596	153,048	6.6%	169,187,052	$ 1,105
91	Anderson	68,250	71,330	4.5%	162,478,148	$ 2,278
92	Gibson	46,315	48,152	4.0%	108,261,000	$ 2,248
93	Obion	31,717	32,450	2.3%	34,605,000	$ 1,066
94	Haywood	19,437	19,797	1.9%	26,841,500	$ 1,356
95	Hancock	6,739	6,786	0.7%	7,969,500	$ 1,174
Bottom Ten Subtotal		**408,333**	**430,316**	**5.4%**	**$ 667,337,216**	**$ 1,551**
Grand Total		**4,877,185**	**5,689,283**	**16.7%**	**$ 14,439,098,437**	**$ 2,538**

Among the high growth counties in Table 13, based on growth rates, Tipton County stands out as the one with the lowest reported needs per capita. In fact, its cost per capita is less than 20 percent of the cost per capita for that group as a whole. It is not clear why Tipton County's reported infrastructure needs are low. Population growth rates, while they are given much

33 For information about the middle 75 counties, see Appendix D.

attention, may not be the best predictor of infrastructure needs. Based on the data in the current infrastructure needs inventory, absolute population increases are much better predictors of high reported needs.

The bottom ten counties for total reported needs are not as easily explained as the top ten counties.

Eight counties appear both in the top ten for total infrastructure needs reported and in the top ten for population. This consistency might indicate that there is a strong relationship between total population or population density and infrastructure needs. However, both TACIR's statistical analysis (see Table 10) and inspection of the data indicate that this is not the case. Counties in the top and bottom groups in Tables 14 and 15 fall both well above and well below the statewide figure of $2,538 per capita.

Table 14. Infrastructure Improvement Needs Reported by Most and Least Populous Counties—Excluding Projects Identified as Regional—Five-year Period July 2001 through June 2006

Rank	County	2000 Population	Percent of Total	Total Estimated Cost	Percent of Total	Cost Per Capita
1	Shelby	897,472	15.8%	$ 1,976,869,579	13.7%	$ 2,203
2	Davidson	569,891	10.0%	2,772,467,905	19.2%	$ 4,865
3	Knox	382,032	6.7%	1,506,710,455	10.4%	$ 3,944
4	Hamilton	307,896	5.4%	491,221,305	3.5%	$ 1,595
5	Rutherford	182,023	3.2%	569,704,507	3.9%	$ 3,130
6	Sullivan	153,048	2.7%	169,187,052	1.2%	$ 1,105
7	Montgomery	134,768	2.4%	281,654,180	2.0%	$ 2,090
8	Sumner	130,449	2.3%	301,269,774	2.1%	$ 2,309
9	Williamson	126,638	2.2%	488,697,057	3.4%	$ 3,859
10	Washington	107,198	1.9%	204,916,724	1.4%	$ 1,912
Top Ten Subtotal		**2,991,415**	**52.6%**	**$ 8,762,698,538**	**60.7%**	**$ 2,929**
All Others[34]		**2,624,997**	**46.1%**	**$ 5,530,638,599**	**38.3%**	**$ 2,107**
86	Jackson	10,984	0.2%	12,873,800	0.1%	$ 1,172
87	Houston	8,088	0.1%	14,107,000	0.1%	$ 1,744
88	Clay	7,976	0.1%	20,480,000	0.1%	$ 2,568
89	Lake	7,954	0.1%	2,536,000	0.0%	$ 319
90	Perry	7,631	0.1%	17,640,000	0.1%	$ 2,312
91	Trousdale	7,259	0.1%	20,880,000	0.1%	$ 2,876
92	Hancock	6,786	0.1%	7,969,500	0.1%	$ 1,174
93	Moore	5,740	0.1%	6,500,000	0.0%	$ 1,132
94	Van Buren	5,508	0.1%	28,455,000	0.2%	$ 5,166
95	Pickett	4,945	0.1%	14,320,000	0.1%	$ 2,896
Bottom Ten Subtotal		**72,871**	**1.3%**	**$ 145,761,300**	**1.0%**	**$ 2,000**
Grand Total		**5,689,283**	**100.0%**	**$14,439,098,437**	**100.0%**	**$ 2,538**

Five counties appear among the bottom ten on both lists (i.e., the least needs and the smallest populations). One of those five (Lake) also appears among the ten with the least needs per capita in Table 12. Interestingly, two of the ten counties with the lowest population densities (Stewart and Van Buren) and two of those with the highest densities (Davidson and Knox) are

34 For information about the middle 75 counties, see Appendix D.

Table 15. Infrastructure Improvement Needs Reported by the Most and Least Densely Populated Counties—Excluding Projects Identified as Regional —Five-year Period July 2001 through June 2006

Rank	County	2000 Population	Land Area [sq. mi.]	Population per Square Mile	Total Estimated Cost	Cost Per Capita
1	Shelby	897,472	755	1,189	$ 1,976,869,579	$ 2,203
2	Davidson	569,891	502	1,135	2,772,467,905	$ 4,865
3	Knox	382,032	508	751	1,506,710,455	$ 3,944
4	Hamilton	307,896	542	568	491,221,305	$ 1,595
5	Sullivan	153,048	413	371	169,187,052	$ 1,105
6	Hamblen	58,128	161	361	134,069,058	$ 2,306
7	Washington	107,198	326	329	204,916,724	$ 1,912
8	Rutherford	182,023	619	294	569,704,507	$ 3,130
9	Bradley	87,965	329	268	211,260,900	$ 2,402
10	Montgomery	134,768	539	250	281,654,180	$ 2,090
Top Ten Subtotal		**2,880,421**	**4,695**	**613**	**$ 8,318,061,665**	**$ 2,888**
All Others[35]		**2,699,883**	**32,585**	**83**	**$ 5,832,002,000**	**$ 2,160**
86	Clay	7,976	236	34	20,480,000	$ 2,568
87	Humphreys	17,929	532	34	29,145,000	$ 1,626
88	Fentress	16,625	499	33	41,880,000	$ 2,519
89	Hancock	6,786	222	31	7,969,500	$ 1,174
90	Bledsoe	12,367	406	30	27,485,000	$ 2,222
91	Pickett	4,945	163	30	14,320,000	$ 2,896
92	Stewart	12,370	458	27	69,034,000	$ 5,581
93	Wayne	16,842	734	23	32,626,272	$ 1,937
94	Van Buren	5,508	273	20	28,455,000	$ 5,166
95	Perry	7,631	415	18	17,640,000	$ 2,312
Bottom Ten Subtotal		**108,979**	**3,939**	**28**	**$ 289,034,772**	**$ 2,652**
Grand Total		**5,689,283**	**41,220**	**138**	**$14,439,098,437**	**$ 2,538**

among the ten reporting the greatest needs per capita. Compare Tables 12 and 15. These top ten and bottom ten comparisons do not appear to support the notion that higher population densities correlate to lower infrastructure costs per capita, but no conclusions can be drawn in that regard without examining the 75 counties in the middle.

35 For information about the middle 75 counties, see Appendix D.

When population factors do not explain the relatively low costs reported by some counties, local tax base factors may.

As with the previous inventory, comparisons of the top ten and bottom ten counties in the current inventory don't shed much light on what's happening in the counties that don't show up in the top and bottom ten, yet the 75 counties in the middle based on population represent nearly 38 percent[36] of the total reported outside of the four largest counties in the state. In order to better understand the more general patterns across all counties, TACIR staff applied some relatively straightforward statistical correlation and regression analyses similar to those used to develop the education fiscal capacity indices used to allocate the local share of Tennessee's education funding formula.[37] These analyses may also suggest other factors that may account for the presence of some counties in the bottom ten when population factors do not. They certainly suggest areas for more in-depth analysis than could be accomplished with the resources currently available for this project.

Regression and correlation analysis allow us to compare several sets of data to determine whether and how they are related.

Both the total number and the total cost reported for infrastructure needs by county are highly correlated (> 0.90)[38] with population, increases in population and the population living in urban areas. However, both are equally highly correlated with local tax base variables and per capita income. And of course, there is a high correlation between the population variables and the tax base variables. High correlations mean that patterns of differences (e.g., across counties) for one variable are very similar to patterns of differences for another variable. Multiple linear regression analysis makes it possible to determine which of those variables, when analyzed in combination, are more strongly related to the infrastructure needs reported across the state. This statistical process produces measures of both the strength and the size of the relationships between a single item of interest and a set of items thought to influence that single item. The process in this case was used to compare reported infrastructure needs by county to each county's 2000 population, its population growth between 1990 and 2000, the proportion of its population considered urban, its property tax base, its sales tax base and its per capita income.[39] Three different models were used to analyze this information, and the results for all were consistent.[40]

As indicated by Table 10, population gain and taxable sales had the most consistent and the strongest relationship to reported infrastructure needs in terms of estimated costs for the current inventory. This is a change from the results reported for the previous inventory. At that time, the total estimated costs were most strongly related to the property tax base. The reason for this change is not clear; however, it may be the result of several factors, including better reporting and the exclusion of regional projects. All three regression models produced better results with the current inventory than with the last, indicating that the inventory itself may be of higher quality.

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36 This percentage is much less than in the previous inventory, primarily because regional projects have been excluded from the current county-level analysis.

37 The Tennessee Advisory Commission on Intergovernmental Relations, *Local Fiscal Capacity for Funding Education in Tennessee* (July 1994).

38 The highest possible correlation is 1.00.

39 The tax base and per capita income variables are an average of the data available for the most recent three years.

40 Density and land area were used to make counties more comparable, rather than as separate factors, in two of the three models.

Another function of multiple linear regression analysis is to make estimates of what a variable might be expected to be based on a set of other variables. This is possible because the analysis produces factors, called coefficients, that can be multiplied by the variables to calculate an expected value for the variable being predicted. Estimates derived by applying the coefficients produced by the cost analysis based on the current inventory and factoring out the influence of development districts, indicate that the current inventory captured around 90 percent of the infrastructure needs in the state, which is consistent with the previous inventory. If the total cost by county is based on the greater of the reported cost or the cost produced by the regression analysis, the statewide total could be anywhere between $22.2 and $22.4 billion rather than the $20.5 billion actually reported. Further analysis is beyond the scope of this report, but this information will assist staff in improving the inventory and may serve as the basis of future staff reports.

Reported Public School Conditions And Needs[41]

Four major factors contribute to a public school system's need for infrastructure:

growth in student populations
compliance with class size standards
natural wear-and-tear or neglect
structural age

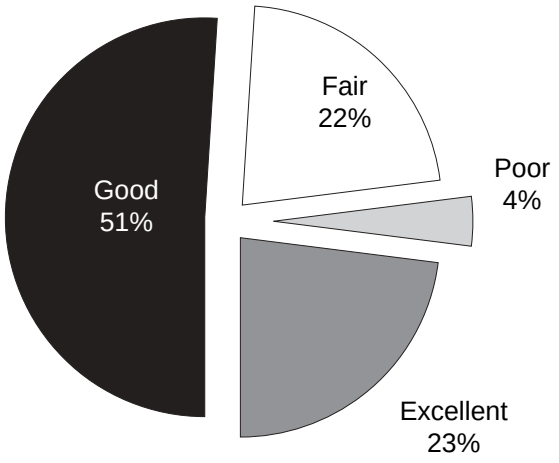
In addition, school systems are expected to comply with mandates, upgrade facilities, and add new technology infrastructure to keep up with changing times. According to local officials, most of Tennessee's public school buildings are in good or excellent condition; nevertheless, significant needs remain. Infrastructure improvements, including new schools as well as improvements and additions to existing schools that need to be in some phase of development during the five-year period of July 2001 through June 2006, are estimated at $3.6 billion. This figure is nearly $162 million less than that reported in the last inventory, which was begun two years ago. The decline may indicate that Tennessee's school systems are beginning to catch up with their facilities needs, though clearly they have not yet done so.

Table 16. Total Reported Cost of Public School Infrastructure Needs[41, 42] by Type of Need—Five-year Period July 2001 through June 2006

Type of Need	Estimated Cost [in millions]	Percent of Total
New School Construction	**$1,634.9**	**45.8%**
EIA-related Needs[43]	*1,202.4*	*33.7%*
Enrollment Growth & Other New School Needs	*432.4*	*12.1%*
Existing Schools	**$1,907.8**	**53.5%**
Facility Component Upgrades	*1,472.7*	*41.3%*
Technology	*230.5*	*6.5%*
EIA Mandate	*150.0*	*4.2%*
Federal Mandates	*39.7*	*1.1%*
Other State Mandates	*14.8*	*0.4%*
System-wide Needs	**$23.2**	**0.7%**
Statewide Total	**$3,565.8**	**100.0%**

41 This section of the report covers only local public school systems. It does not include the state's special schools, and therefore, totals presented here will not match totals elsewhere in this report.
42 Detailed information for each school system is presented in Appendix E.
43 TACIR staff analyzed patterns of growth in student counts to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather than to enrollment growth or replacement of existing schools. For a description of the TACIR methodology, see Appendix F.

Figure 4. Condition of Schools as Reported by Local Officials



Seventy-four percent of Tennessee's public schools are in good or excellent condition, but upgrades of $1.5 billion are still needed.

Defining what constitutes a high-quality learning environment is subjective in nature and difficult to quantify. While the optimum condition for schools may be a qualitative rating of excellent, as a practical matter, the goal of the inventory is to capture the cost of getting our schools in good condition—both overall and for each facility component.[44] As shown in Figure 4, nearly three-fourths of Tennessee's public schools are in good or excellent condition. However, even schools in good or excellent condition overall can have components in less than good condition.

As shown in Table 17, just over 90 percent of Tennessee's public school systems rate at least half of their school buildings good to excellent. Only two school systems indicate that none of their buildings are in good or excellent condition. The cost of putting all public schools in good condition varies among the school systems depending on the percentage of schools already in good or excellent condition. The cost per student for the two systems that rate none of their school buildings good or excellent is nearly three times the statewide cost per student.

Table 17. Cost per Student to Put All Schools in Good Condition by Percent of Schools Currently in Good or Excellent Condition

Percent of Schools Good or Excellent	Number of School Systems	Percent of School Systems	Cost per Student to Put All Schools in Good Condition
None	2	1.4%	$ 3,504
Less than 25%	1	0.7%	$ 887
25% to 50%	10	7.2%	$ 3,309
50% to 75%	17	12.3%	$ 1,343
75% to 100%	108	78.3%	$ 627
Total	**138**	**100.0%**	**$ 1,248**

Local school officials report a need to upgrade one or more facility components at 47 percent of all schools at a total estimated cost of almost $1.5 billion as shown in Table 16 on the preceding page. This figure is almost $340 million more than the amount recorded in the inventory two years ago, but is offset to a great extent by the nearly $275 million decrease in needs attributable to the EIA at new and existing schools.

44 See the Education Survey Form, Section B-9, in Appendix C for more specific information about the facility rating scale.

The EIA remains the most significant mandate for Tennessee schools.

Approximately $1.4 billion is needed in order for Tennessee's public schools to comply with state and federal facilities mandates, which was a decrease of $430 million since the February 2001 report, which is based on a period two years earlier than the current timeframe. Ninety-six percent of the total mandated needs is attributable to the Education Improvement Act (EIA) adopted by the Tennessee General Assembly in 1992;[45] the remainder is attributable primarily to federal mandates. (See Figure 5 and Table 18.) One of the hallmarks of the EIA is the reduction of class size for students in all grades. Smaller classes mean more teachers, and more teachers mean more classrooms. The EIA set a deadline of fall 2001 for the new standards to be met, and school systems across the state have been striving to meet it since 1992. According to the Tennessee Department of Education, all schools hired enough teachers to meet this mandate on time. The decrease between the current and the previous inventories in the estimated cost of housing new classes created by the EIA mandate makes sense given these facts.

Figure 5. Percent of Reported Cost of Facilities Mandates at Public Schools by Type of Mandate

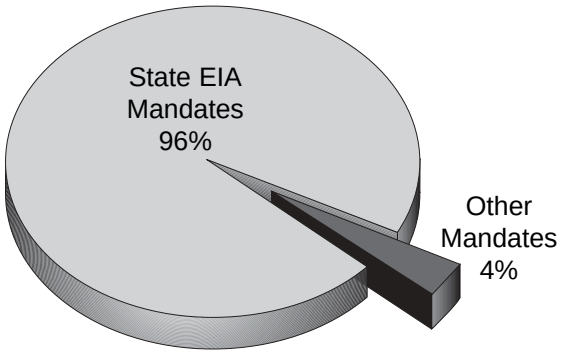


Table 18. Total Reported Cost of Facilities Mandates at Public Schools Five-year Period July 2001 through June 2006

Mandates	Estimated Cost [in millions]	Percent of Total Mandate Cost
State Mandate Total	**$1,367.3**	**97.2%**
State-EIA (New & Existing Schools)	*1,352.5*	*96.1%*
State-Fire Codes	*11.5*	*0.8%*
State-Other	*3.3*	*0.2%*
Federal Mandate Total	**$ 39.7**	**2.8%**
Asbestos	*21.3*	*1.5%*
Americans with Disabilities Act	*15.1*	*1.1%*
Special Education	*1.9*	*0.1%*
Title I	*0.5*	*0.0%*
Underground Storage Tanks	*0.4*	*0.0%*
Lead	*0.3*	*0.0%*
Radon	*0.2*	*0.0%*
Mandate Total	**$1,407.0**	**100.0%**

[45] TACIR staff analyzed patterns of growth in student counts to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather to enrollment growth or replacement of existing schools. For a description of the TACIR methodology, see Appendix F.

Average cost per student to meet infrastructure needs varies widely.

Drawing conclusions about the variation across school systems in reported infrastructure needs is difficult. Based on the information provided by local officials for their schools and the estimates developed by TACIR staff for new school construction attributable to the EIA, the overwhelming majority of school systems (92 of the 137 full-service systems) have the classroom space they need for the teachers hired to meet the new class-size standards imposed fall 2001. Most of the remaining school systems can meet that need for less than $500 per student. This is a dramatic improvement since the previous inventory of needs and indicates in general that Tennessee's public school systems planned well to the meet the new requirement with adequate facilities. (See Table 19 above)[46]

Table 19. Number of School Systems by Range of EIA-Related Infrastructure Cost per Student Five-year Period July 2001 through June 2006

Reported EIA Costs per Student	Number of School Systems	Percent of School Systems
None	92	67.2%
Less than $500	31	22.6%
$500 to $1,000	6	4.4%
$1,000 to $1,500	2	1.5%
$1,500 to $2,000	4	2.9%
More than $2,000	2	1.5%
Total	**137***	**100.0%**

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

While EIA-related needs have declined dramatically, upgrade needs at existing schools have increased. Local officials assessed the condition of classrooms and other facilities at their existing schools and reported a total need of $1.5 billion (see Table 16) to upgrade them to good condition. This figure is about $340 million or thirty percent more than the figure presented in the February 2001 report. The difference may result in part from a change in the inventory format designed to better align facility ratings with estimated costs to put them in good condition and increased efforts by TACIR staff to interpret and verify reported needs.

Table 20. Number of School Systems by Range of Upgrade Costs per Student Five-year Period July 2001 through June 2006

Reported Upgrade Cost per Student	Number of School Systems	Percent of School Systems
None	43	31.4%
Less than $500	64	46.7%
$500 to $1,000	12	8.8%
$1,000 to $1,500	9	6.6%
$1,500 to $2,000	5	3.6%
More than $2,000	4	2.9%
Total	**137***	**100.0%**

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

As shown in Table 20, nearly a third of all systems report no need to upgrade their facilities, and nearly half report that they can put all of their facilities in good condition for less than $1,000 per student system wide. This is no small amount, but nine school systems report a cost of more than triple that amount per student. TACIR staff attempted to limit the subjectivity

[46] Appendix E includes the cost per student for each school system.

inherent in rating the condition of schools by carefully defining the terms used to do so in the survey itself (see Appendix C). However, with 138 school systems, it is impossible to ensure that the condition of all facilities is rated in a consistent manner. Determining the reasons for the variation in reported needs would require more information than was gathered for the infrastructure inventory. Differences among schools systems in the costs they estimate to put their schools in good condition may relate to the judgment of local officials or, in the case of unusually high costs per student, may reflect either neglect or attempts to set a higher standard.

Table 21. Number of School Systems by Range of Technology Infrastructure Costs per Student Five-year Period July 2001 through June 2006

Technology Cost per Student	Number of School Systems	Percent School Systems
$0	24	17.5%
Less than $100	57	41.6%
$100 to $200	28	20.4%
$200 to $300	7	5.1%
$300 to $400	9	6.6%
More than $400	12	8.8%
Total	**137***	**100.0%**

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

As shown in Table 16, local officials estimated a total need for $231 million in technology infrastructure at existing schools. While the total amount is slightly higher than the amount reported in the previous inventory, more school systems are reporting no new technology needs, and about the same number are reporting needs of less than $100 per student system wide. Twenty-four school systems now report no need to upgrade technology in their schools, which is nine more than in the previous inventory. The same number of systems (twelve) report needs of more than $400 per student. (See Table 21 above.) Reasons for variations like these include local priorities; in the case of relatively low costs, earlier efforts to meet technology needs; and in the case of relatively high costs, current or planned efforts to provide more state-of-the-art technology. It cannot be said without further study whether any of these costs are unreasonably high or whether other estimates are low.

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Appendix A: Enabling Legislation

The original legislation establishing the public infrastructure needs inventory was passed in 1996 as Public Chapter 817. That act gave the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) responsibility for the inventory and directed the Commission to implement the inventory through contracts with the nine development districts across the state. The act also provided a funding mechanism based on Tennessee Valley Authority revenue sharing funds.

The January 1999 report to the 101st General Assembly acknowledged the relationship between Public Chapter 817 and a new law passed in 1998, Public Chapter 1101, which is known as the growth policy act. Public Chapter 1101 directed all local governments with the exception of those in the two metropolitan counties of Davidson and Moore to work together to establish growth boundaries for incorporated areas, planned growth areas outside those boundaries, and rural areas. In order to do so, those local governments were required by Section 7 of that act to "determine and report the current costs and the projected costs of core infrastructure".

Since that time, the General Assembly has enacted a new law expressly linking the infrastructure and growth policy initiatives. Chapter 672, Public Acts of 2000, specified in Section 3 that implementation of city and county growth plans' "infrastructure, urban services and public facility elements" were to be monitored by means of the public infrastructure needs inventory of Public Chapter 817.

The full text of Public Chapters 817 and 672 and Section 7 of Public Chapter 1101 are presented in the following pages.

CHAPTER NO. 817

SENATE BILL NO. 2097

By Rochelle

Substituted for: House Bill No. 3257

By Rhinehart

AN ACT To amend Tennessee Code Annotated, Title 4, Chapter 10 and Section 67-9-102(b)(3), relative to a statewide public infrastructure needs inventory.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 4, Chapter 10, is amended by adding the following as a new section:

Section __. (a) In order for the commission to fulfill its obligations to study and report on the existing, necessary and desirable allocation of state and local fiscal resources, the powers and functions of local governments, and relationship between the state and local governments, and its duties to engage in activities for the accomplishment of these various studies and reports, the commission shall annually compile and maintain an inventory of needed infrastructure within this state. The information and data gathered by such an annual inventory is deemed necessary in order for the state, municipal and county governments of Tennessee to develop goals, strategies and programs which would improve the quality of life of its citizens, support livable communities and enhance and encourage the overall economic development of the state through the provision of adequate and essential public infrastructure. All funds necessary and required for this inventory shall be administered through the commission's annual budget and such funds shall be in addition to the commission's annual operational budget amounts. The inventory shall include, at a minimum, needed public infrastructure facilities which would enhance and encourage economic development, improve the quality of life of the citizens and support livable communities within each municipality, utility district, county and development district region of the state and shall include needs for transportation, water and wastewater, industrial sites, municipal solid waste, recreation, low and moderate income housing, telecommunications, other infrastructure needs such as public buildings (including city halls, courthouses and K-12 educational facilities) and other public facilities needs as deemed necessary by the commission. The data shall be compiled on a county-by-county basis within each development district area. In order to accomplish this inventory, the commission shall annually contract for the services of the state's nine (9) development districts and shall compensate each of the development districts at a rate of five cents ($.05) per capita or fifty thousand dollars ($50,000), whichever is greater. The per capita amount shall be based upon the population counts within each development district as determined from the latest county population estimates reported by

the United States Department of Commerce, U.S. Bureau of the Census or its federal functional equivalent. From funds allocated to the commission for the purpose of conducting this annual inventory, the commission shall retain for its necessary administration and coordination costs for this annual inventory one and one-half cents ($.015) per capita based upon the state total population as determined by the latest county population estimates reported by the United States Department of Commerce, U.S. Bureau of the Census or its federal functional equivalent.

(b) In compiling the public infrastructure needs inventory on a county-by-county basis, at a minimum, the commission shall consult with each county executive, mayor, local planning commission, utility district, county road superintendent and other appropriate local and state officials concerning planned and/or anticipated public infrastructure needs over the next five (5) year period, together with estimated costs and time of need within that time frame.

(c) The public infrastructure needs inventory shall not include projects considered to be normal or routine maintenance. Moreover, infrastructure needs projects included in the inventory should involve a capital cost of not less than fifty thousand dollars ($50,000). The infrastructure needs inventory shall not duplicate the extensive needs data currently maintained by various state agencies on state facilities which are presently available to the commission. Provided, however, this limitation does not prohibit one (1) or more counties or municipalities from identifying a need for a vocational educational facility or a community college or a new public health building in a particular local area. In addition, the commission may request various state agencies to supply various needs data that may be available in such areas as highway or rail bridges, airports or other areas.

(d) The annual public infrastructure needs inventory by each development district shall be conducted utilizing standard statewide procedures and summary format as determined by the commission to facilitate ease and accuracy in summarizing statewide needs and costs.

(e) The public infrastructure needs inventory shall be completed by the development districts and submitted to the commission no later than June 30 of each year.

(f) The annual inventory of statewide public infrastructure needs and costs for provision of adequate and essential public infrastructure shall be presented by the commission to the Tennessee General Assembly at its next regular annual session following completion of the inventory each year.

SECTION 2. Tennessee Code Annotated, Section 4-10-107, is amended by adding the following as a new subdivision (d):

(d) In addition to any funds appropriated by the General Assembly to the commission, the commission is authorized to receive annual allocations of funds from the Tennessee State Revenue Sharing Act, Tennessee Code Annotated, Section 67-9-102(b)(3), for the purpose of conducting an annual public infrastructure needs inventory to aid in the provision of adequate and essential public infrastructure statewide for the improvement of the quality of life of Tennessee citizens, the support of livable communities and the enhancement and encouragement of the overall economic development of the state.

SECTION 3. Tennessee Code Annotated, Section 67-9-102(b)(3), is amended by adding the following immediately before the last sentence in said subdivision:

If, in any year there are funds remaining after the allocation provided for in subdivisions (b)(1) and (2) of this subsection, or there are no impacted areas and after any allocation to the University of Tennessee as provided for in this subdivision, then any remaining

funds, not to exceed twenty percent (20%) of the total of such impact funds per year, shall be allocated by the Comptroller of the Treasury to the Tennessee Advisory Commission on Intergovernmental Relations. The Tennessee Advisory Commission on Intergovernmental Relations shall utilize such funds for an annual inventory of statewide public infrastructure needs. This annual inventory of statewide public infrastructure needs is to be used to support efforts by state, county and municipal governments of Tennessee in developing goals, strategies and programs to provide adequate and essential public infrastucture which is needed to enhance and encourage economic development, support livable communities and improve the quality of life for the citizens of this state.

SECTION 4. This act shall take effect July 1, 1996, the public welfare requiring it.

PASSED: April 11, 1996

JOHN S. WILDER
SPEAKER OF THE SENATE

JIMMY NAIFEH, *SPEAKER*
HOUSE OF REPRESENTATIVES

APPROVED this 25th day of April 1996

DON SUNDQUIST, *GOVERNOR*

Chapter No. 672] PUBLIC ACTS, 2000

CHAPTER NO. 672

SENATE BILL NO. 3052

By Rochelle

Substituted for: House Bill No. 3099

By Rinks

AN ACT To amend Tennessee Code Annotated, Section 4-10-109 and Section 67-9-102, relative to the statewide public infrastructure needs inventory.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Section 67-9-102(b)(3), is amended by deleting the fifth sentence and by substituting instead the following:

In order to accomplish this inventory, the commission shall annually contract for the services of the state's nine (9) development districts or an agency or entity of state or local government or higher education and shall compensate each of the development districts or the agency or entity of state or local government or higher education at the rate of five cents ($0.05) per capita or fifty thousand dollars ($50,000), whichever is greater.

SECTION 2. Tennessee Code Annotated, Section 4-10-109(a), is amended by adding the following language immediately after the final sentence:

The commission shall annually contract for the services of the state's nine (9) development districts to accomplish this inventory. However, if the executive director finds that a development district has not adequately fulfilled a prior inventory contract, then instead of the development district which has not fulfilled its contract obligations, the executive director may annually contract with another agency or entity of state or local government or higher education to perform the inventory within that district's area.

SECTION 3. Tennessee Code Annotated, Section 4-10-109(b), is amended by adding the following language immediately after the final sentence:

From those cities and counties with adopted growth plans in accordance with Tennessee Code Annotated, Title 6, Chapter 58, Part 1, the commission shall gather and report the infrastructure, urban services and public facilities needs reported in the growth plans. These infrastructure needs were factors in the determination of urban growth boundaries for cities and the planned growth areas for counties. Implementation of the cities and counties growth plans' infrastructure, urban services and public facility elements are to be monitored by means of the five (5) year inventory of public infrastructure needs.

SECTION 4. Tennessee Code Annotated, Section 4-10-109(d), is amended by adding the following after the word "district":

or an agency or entity of state or local government or higher education

SECTION 5. Tennessee Code Annotated, Section 4-10-109(e), is amended by adding the following after the word "district":

or an agency or entity of state or local government or higher education

SECTION 6. This act shall take effect upon becoming a law, the public welfare requiring it.

PASSED: April 10, 2000

JOHN S. WILDER
SPEAKER OF THE SENATE

JIMMY NAIFEH, *SPEAKER*
HOUSE OF REPRESENTATIVES

APPROVED this 25th day of April 2000

DON SUNDQUIST, GOVERNOR

CHAPTER NO. 1101

SENATE BILL NO. 3278

By Rochelle

Substituted for: House Bill No. 3295

By Kisber, Walley, Rinks, McDaniel, Curtiss

AN ACT To amend Tennessee Code Annotated, Title 4; Title 5; Title 6; Title 7; Title 13; Title 49; Title 67 and Title 68, relative to growth.

SECTION 7.

(a)

(1) The urban growth boundaries of a municipality shall:

(A) Identify territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next twenty (20) years;

(B) Identify territory that is contiguous to the existing boundaries of the municipality;

(C) Identify territory that a reasonable and prudent person would project as the likely site of high density commercial, industrial and/or residential growth over the next twenty (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics; (if available, professional planning, engineering and/or economic studies may also be considered);

(D) Identify territory in which the municipality is better able and prepared than other municipalities to efficiently and effectively provide urban services; and

(E) Reflect the municipality's duty to facilitate full development of resources within the current boundaries of the municipality and to manage and control urban expansion outside of such current boundaries, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before formally proposing urban growth boundaries to the coordinating committee, the municipality shall develop and report population growth projections; such projections shall be developed in conjunction with the University of Tennessee. The municipality shall also determine and report the current costs and the projected costs of core infrastructure, urban services and public facilities necessary to facilitate full development of resources within the current boundaries of the municipality and to expand such infrastructure, services and facilities throughout the territory under consideration for inclusion within the urban growth boundaries. The municipality shall also determine and report on the need for additional land suitable for high density, industrial, commercial and residential development, after taking into account all areas within the municipality's current boundaries that can be used, reused or redeveloped to meet such needs. The municipality shall examine and report on agricultural lands, forests, recreational areas and wildlife management areas within the territory under consideration for inclusion within the urban growth boundaries and shall examine and report on the likely long-term effects of urban expansion on such agricultural lands, forests, recreational areas and wildlife management

areas.

(3) Before a municipal legislative body may propose urban growth boundaries to the coordinating committee, the municipality shall conduct at least two (2) public hearings. Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the municipality not less than fifteen (15) days before the hearing.

(b)

(1) Each planned growth area of a county shall:

(A) Identify territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next twenty (20) years;

(B) Identify territory that is not within the existing boundaries of any municipality;

(C) Identify territory that a reasonable and prudent person would project as the likely site of high or moderate density commercial, industrial and/or residential growth over the next twenty (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics; (if available, professional planning, engineering and/or economic studies may also be considered);

(D) Identify territory that is not contained within urban growth boundaries; and

(E) Reflect the county's duty to manage natural resources and to manage and control urban growth, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before formally proposing any planned growth area to the coordinating committee, the county shall develop and report population growth projections; such projections shall be developed in conjunction with the University of Tennessee. The county shall also determine and report the projected costs of providing urban type core infrastructure, urban services and public facilities throughout the territory under consideration for inclusion within the planned growth area as well as the feasibility of recouping such costs by imposition of fees or taxes within the planned growth area. The county shall also determine and report on the need for additional land suitable for high density industrial, commercial and residential development after taking into account all areas within the current boundaries of municipalities that can be used, reused or redeveloped to meet such needs. The county shall also determine and report on the likelihood that the territory under consideration for inclusion within the planned growth area will eventually incorporate as a new municipality or be annexed. The county shall also examine and report on agricultural lands, forests, recreational areas and wildlife management areas within the territory under consideration for inclusion within the planned growth area and shall examine and report on the likely long-term effects of urban expansion on such agricultural lands, forests, recreational areas and wildlife management areas.

(3) Before a county legislative body may propose planned growth areas to the coordinating committee, the county shall conduct at least two (2) public hearings Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the county not less than fifteen (15) days before the hearing.

(c)

(1) Each rural area shall:

(A) Identify territory that is not within urban growth boundaries;

(B) Identify territory that is not within a planned growth area;

(C) Identify territory that, over the next twenty (20) years, is to be preserved as agricultural lands, forests, recreational areas, wildlife management areas or for uses other than high density commercial, industrial or residential development; and

(D) Reflect the county's duty to manage growth and natural resources in a manner which reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before a county legislative body may propose rural areas to the coordinating committee, the county shall conduct at least two (2) public hearings. Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the county not less than fifteen (15) days before the hearing.

(d) Notwithstanding the extraterritorial planning jurisdiction authorized for municipal planning commissions designated as regional planning commissions in Title 13, Chapter 3, nothing in this act shall be construed to authorize municipal planning commission jurisdiction beyond an urban growth boundary; provided, however, in a county without county zoning, a municipality may provide extraterritorial zoning and subdivision regulation beyond its corporate limits with the approval of the county legislative body.

Appendix B: Project History

On April 11, 1996, the General Assembly passed the Public Infrastructure Needs Inventory Act, sponsored by Senator Robert Rochelle (Senate District 17) and Representative Shelby Rhinehart (House District 37). This Act was signed into law by Governor Don Sundquist as Public Chapter 817, on April 25, 1996.

The Rebuild Tennessee Coalition (RTC) and the Tennessee Development District Association (TDDA) advocated the Public Infrastructure Needs Inventory Act. The RTC was established in 1992 as a chapter of the national Rebuild America Coalition. The RTC is an association of public and private organizations along with individuals who are committed to encouraging investment in Tennessee's infrastructure. The TDDA is comprised of the nine development districts that provide economic planning and development assistance to the local governments in their respective regions.

The Act, which became effective July 1, 1996, directs TACIR to compile and maintain an inventory of needed infrastructure within this state. TACIR staff manages the implementation of the inventory and staff from each of Tennessee's nine development districts survey public officials within their jurisdiction to develop the inventory under the direction of TACIR.

The first inventory was done in 1997 through 1998. The first report was published in January 1999. This infrastructure inventory is a dynamic and progressive program that has evolved since its inception. This is the third report in the continuing inventory of Tennessee's infrastructure needs. The report reflects several improvements over the first inventory.

- Communication and partnerships among stakeholders have been improved.
- Standardized procedures have been clarified to enhance reporting consistency.
- Quality control has been augmented with statistical analysis and cross-referencing data.
- A dedicated effort was made to better capture new school construction needs.
- The inventory forms have been redesigned to capture new data to support further analysis in future reports of fiscal and growth policy.
- The database has been redesigned to facilitate more efficient data management.
- The format of the report has been updated to include a more analytical perspective by standardizing cost estimates on a per capita basis and investigating the relationship between reported need versus funding-based variables and need-based variables.

Appendix C: Inventory Forms

Two separate forms were used to collect data for the Public Infrastructure Needs Inventory on which this report was based. The General Survey Form was used to record information about the need for new or improved infrastructure, including new schools. The Education Survey Form is used to record additional information about the conditions and facility needs at existing public schools from kindergarten through high school.

Survey forms from the United States General Accounting Office (GAO) provided the original model for the forms used in the first infrastructure needs inventory in Tennessee during 1997. Since that time, the forms have been further customized to more meet the requirements of Chapter No. 1101, Public Acts of 1998, and Chapter No. 672, Public Acts of 2000 (see Appendix A).

Staff from Tennessee's nine development districts use the inventory forms to gather information from local government officials and agencies in each county. They include at a minimum

- county executives,
- mayors,
- local planning commissions,
- local public building authorities,
- local education agencies,
- utility districts, and
- county road superintendents.

Participation by local officials is voluntary.

State of Tennessee
Tennessee Advisory Commission on Intergovernmental Relations
General Infrastructure Survey Form
Includes K-12 New School Construction & System-wide Needs

Include projects planned from July 1, 2001, through June 30, 2021.
Record all information based on the project status as of July 1, 2001.

Each project must involve a cost of fifty thousand dollars ($50,000) or greater to be included in this inventory of needs.

1. **Project Number:** _____--_____
   An 8-digit alphanumeric identifier that is auto generated by the development district during data entry.

2. **Is this a multi-jurisdiction regional project?**
   Yes or No _____

3. **Development District(s):** _____
   _____
   The regional development district that serves this location.

4. **County(ies):** _____
   _____
   County where the project is located or multiple counties if this is a regional project.

5. **City(ies):** _____
   _____
   The city or cities in which this project is located. If outside a municipality, record as "**unincorporated**".

6. **Level of Government Responsible for the Project:**
   ____ City ____ Federal
   ____ County ____ Joint (multiple levels of government)
   ____ State ____ Other (utility district or public-private venture, etc.)

7. **Entity(ies) Responsible for the Project:** _____
   _____
   _____
   The entity that will oversee the implementation of the project.

8. **Ownership**: _____
   _____
   _____
   The entity (e.g., agency, department, etc.) that will hold legal title to the capital facility or land asset upon completion of the project.

9. **Local Education Agency** (LEA), if applicable
   LEA Number: _____
   LEA Name: _____

10. **Type of Project:** (Select a maximum of one classification from each list.)

Category List A
- ____ K-12 New School Construction
- ____ LEA System-wide Need
- ____ Non K-12 Education
- ____ Business District Development
- ____ Community Development
- ____ Fire Protection
- ____ Housing
- ____ Industrial Sites & Parks
- ____ Law Enforcement
- ____ Libraries & Museums
- ____ Navigation
- ____ Public Buildings
- ____ Public Health Facilities
- ____ Recreation
- ____ Solid Waste
- ____ Other Facilities

Category List B
- ____ Property Acquisition
- ____ Stormwater
- ____ Telecommunications
- ____ Transportation
- ____ Water & Wastewater
- ____ Other Utilities (Elec., Nat. Gas, and Multiple Services)

11. **Project Name:** _____

12. **Project Description:** _____
    _____
    _____

13a. **What is the primary reason for this project?**
   _____ Economic Development _____ Community Enhancement
   _____ Population Growth _____ Public Health or Safety
   _____ Federal Mandate _____ State Mandate
   _____ Other _____
   _____ Combination (check all that apply)

13b. **If the primary reason for the project is mandate compliance, then identify the applicable mandates.** _____
    _____

14a. **What is the estimated cost of this project? $** _____

14b. **Are sufficient funds available to complete this project?** Yes or No _____

14c. **List available dollars and funding sources** (show all that apply)
   Local contribution $_____
   Local Source (funds or bonds)_____
   State contribution $_____
   State Source (agency)_____
   Federal contribution $_____
   Federal Source (agency)_____

14d. **If there are not sufficient funds to complete this needed project, how much additional funding will be needed? $** _____

15. Project FY Start Date: _____
Fiscal year (July 1 – June 30) when project cost will commence

16. Project FY End Date: _____
Fiscal year (July 1 – June 30) when the completed project will begin to provide the intended public benefit

17. Stage of project development as of July 1, 2001:

____ **Conceptual:** has an estimated cost, but not yet in planning & design

____ **Planning & Design:** has specific engineering or architectural drawings

____ **Construction:** design plans are being executed

If the project was reported in a prior survey, you may need to report the project stage as Complete or Canceled if work is no longer active.

____ **Completed:** construction or acquisition is concluded and the capital facility or land asset is available to provide the intended public benefit.

____ **Canceled:** terminated at any stage from conceptual through design or construction

18. If this project is now complete, provide the total square footage and the final cost.
Square footage _____ Final cost $_____

19. Is this project listed in a capital improvement plan (CIP)? Yes or No _____

20a. Is this project linked to other projects in the survey? Yes or No _____
Projects are "linked" if two or more projects are required to achieve a functional result (e.g., a transportation project might be linked to an industrial site project or a utility project might be linked to a public building project, etc.).

20b. If this project is linked, provide the other project name(s) and project number(s).

Name of linked project	**Project Number of linked project** (The development district staff person can supply this information.)

21. Location of Project: _____
_____

22. Identify the P.C. 1101 Growth Boundary in which this project will be located.

____ Existing city limits of an incorporated area
____ Urban Growth Boundary of an incorporated area
____ Planned Growth Area established by the county
____ Rural Area designated by the county
____ Combination (check here and others that apply)
____ This entity does not have an official growth plan.
_____ Site location has not been determined.
This is only valid for projects in the conceptual stage.

23. Respondent/Contact Person: _____
The person who provided the answers to this form.

24. Contact Person's Title: _____

25. Contact Entity: _____

26. Contact Person's Telephone Number: _____

27. Surveyor: _____
Contractor who interviews local public officials or otherwise gathers the data recorded in the survey.

State of Tennessee
Tennessee Advisory Commission on Intergovernmental Relations
Existing School Facility Survey Form

Include projects planned from July 1, 2001, through June 30, 2021.
Record all information based on the project status as of July 1, 2001.

Each component project at the school must involve a cost of fifty thousand dollars ($50,000) or greater to be included in this inventory of needs.

A. SCHOOL IDENTIFICATION

A1. School Number: _____-- _____
A two part 7-digit number that is unique to each school. It is the same numbering system used by the TN Dept. of Education to identify each Local Education Agency (LEA) and school facility.

A2. Development District: _____
The development district that serves this school.

A3. County: _____
The county in which this school campus is located.

A4. LEA Name:
_____
The name of the school system that operates this school campus.

A5. School Name:
_____
The legal name of the school

B. CAMPUS AND PROJECT INFORMATION

B1. Construction date of main campus building: _____
Indicate the year of construction for the main building on campus.

B2. Recent construction or renovations:
List each project that occurred within the last five years if its cost was equal to or greater than $50,000. List projects by category (e.g., new school, classroom, science lab, auditorium, cafeteria, library and gym projects should be listed separately).

Project	Year Completed	Sq. Footage	Total Cost
			$
			$
			$
			$
			$

B3. Are any of this school's facilities shared with another educational institution?
Yes or No: _____ If "yes", list the shared facility, the institution with which it is shared and the reason for sharing (e.g., ABC High School is sharing 10 classrooms with XYZ College for night classes and sharing a gymnasium with QRS Middle School because the middle school does not have an adequate gym).

Shared Facility	Institution	Reason

B4. Does this school conduct programs/classes off-campus because of inadequate facilities?
Yes or No: _____ If "yes", list the program, the off-campus location, and reason (e.g., ABC Middle School has a library research class at MNO High School because the middle school does not have an adequate library).

Program	Off-Campus Location	Reason

B5. Is there a plan to close this facility within the next five years?
Yes or No: _____ If "yes", provide the date of closure and identify the replacement facility if applicable.

Date of Planned Closure	Name of the Replacement School	Project Number of the Replacement School

B6. Is there a plan to change the function of this facility within the next five years?
Yes or No: _____ If "yes", provide the date of change and identify the new function.

Date of Planned Change in Function	New Function

B7. List all technology infrastructure needs at this facility. Technology infrastructure includes capital assets such as electronic devices and computers. For purposes of this inventory, technology does not include application software (e.g., Accelerated Reader, MS-Office) or telecommunication devices (e.g., telephones, radios). Technology infrastructure projects may be included regardless of cost. All other projects included in this inventory must involve a capital cost of not less than fifty thousand dollars ($50,000).

Technology Infrastructure Need	Cost Estimate
	$
	$
	$
	$
	$
	$

B8. Record the costs this school will incur to comply with federal and state facility mandates. Federal and state mandates are any rule, regulation, or law originating from the federal or state government that result in a project to be implemented at the local level. Record a mandate project only if the entire project is the result of a mandate. Costs associated with the Education Improvement Act of 1992 (EIA) will be captured only in section C; therefore, do not report EIA costs in this table. If there are other federal or state mandates not shown in the table, then list the level of government, the mandate, the compliance need, and the cost in the blank rows of the table.

Level of Government	Mandate	Describe compliance need(s):	Cost of Compliance
Federal	Americans with Disabilities Act		$
Federal	Asbestos		$
Federal	Lead		$
Federal	Radon		$
Federal	Underground Storage Tanks		$
State	Fire Codes		$
State	Special Education		$
Check one _____ State _____ Federal			$
Check one _____ State _____ Federal			$
Check one _____ State _____ Federal			$
Check one _____ State _____ Federal			$

B9. Using the facility rating scale provided here, rate the condition of the various facility components at this school and estimate the cost to bring all components to a "Good" condition. (Do not include costs recorded in sections B 7, B 8 or section C.)

FACILITY RATING SCALE:

Excellent: can be maintained in a "like new" condition and continually meet all building code and functional requirements with only minimal routine maintenance.

Good: does not meet the definition of "excellent", but the structural integrity is sound and the facility can meet building code and functional requirements with only routine or preventive maintenance or minor repairs that do not hinder the facility's use.

Fair: structural integrity is sound, but the maintenance or repairs required to ensure that it meets building code or functional requirements hinder—but do not disrupt—the facility's use.

Poor: repairs required to keep the structural integrity sound or to ensure that it meets building code or functional requirements are costly and disrupt—or in the case of an individual component may prevent—the facility's use.

STAGE OF PROJECT: The current stage of development for a project recorded in the Public Infrastructure Needs Inventory should be recorded based on its status as of July 1, 2001, and it may be any one of the following:

Conceptual: identified as an infrastructure need with an estimated cost, but not yet in the process of being planned or designed.

Planning/Design: development of a set of specific drawings or activities necessary to complete a project identified as an infrastructure need.

Construction: actual execution of a plan or design developed to complete or acquire a project identified as an infrastructure need.

If the project was reported in a prior survey, you may need to report the project stage as Complete or Canceled if work is no longer active.

Completed: construction or acquisition is concluded and the capital facility or land asset is available to provide the intended public benefit.

Canceled: terminated at any stage from conceptual through design or construction; eliminated from consideration for any reason other than completion; to be removed from the Public Infrastructure Needs Inventory.

Component	Excellent	Good	Fair	Poor	Number of components to be upgraded	Overall stage of upgrade projects	Number of components to be replaced	Overall stage of replacement projects	Total cost to upgrade or replace components rated less than good (Must be ≥ $50,000)
Example: *Classrooms (Permanent)*	*2*	*10*	*6*	*2*	*6*	*Conceptual*	*2*	*Planning & design*	*$250,000*
Classrooms (Permanent)									$
Classrooms (Portable)									$
Science Labs									$
Auditorium									$
Cafeteria									$
Library/Media Center									$
Indoor Physical Ed. Facilities/ Gymnasium									$
									$
									$
									$
									$
									$

B10. Rate the overall condition of the entire school. Consider the ratings given to each of the various components in question B9 when evaluating the overall condition of the entire school, and then apply the definitions in the FACILITY RATING SCALE.

Excellent	Good	Fair	Poor

C. EDUCATION IMPROVEMENT ACT OF 1992 (EIA)

The EIA is a law enacted by the Tennessee General Assembly in 1992 that had the effect of, among other things, requiring additional teachers and therefore additional classrooms to be in place by the beginning of the 2001-2002 school year. Record only EIA related costs here. Other costs related to facility condition (e.g., restrooms, libraries, etc.) should be reported in section B9.

C1. As of July 1, 2001, does this facility have enough classrooms to accommodate the EIA teacher-pupil ratio?
Yes or No _____ If "yes", then skip to section D. If "no", continue.

C2. If there are not enough classrooms, then please explain how the EIA requirement will be met for school year 2001-2002.

_____

_____

C3. How many additional classrooms will this school need to comply with the EIA in school year 2001-2002?

_____

C4. Estimate the cost for each addition of classrooms (permanent or portable) necessary to comply with the EIA teacher-pupil ratio in school year 2001-2002.

Count and description of project	Stage of Project	Cost
Example: *10 Permanent Classrooms*	*Planning and Design*	*$800,000*
		$
		$
		$
		$

D. RESPONDENT INFORMATION AND SURVEYOR IDENTIFICATION

D1. Respondent/Contact Person: _____
Person who provided the answers to this form.

D2. Contact Person's Title: _____

D3. Contact Entity: _____

D4. Contact Person's Telephone Number: _____

D5. Surveyor: _____
Development District Staff Person(s)/ Interviewer (i.e., Contractor who gathers the data recorded in the survey).

Appendix F: TACIR Methodology for Estimated Costs of New Schools Attributable to the Education Improvement Act

Because the descriptions for reported projects were insufficiently clear to allow staff to allocate costs any other way that could be considered accurate, TACIR staff developed a formula to estimate the proportion of the reported costs that could be attributed to the EIA's class-size mandates. Staff did this based on student counts provided by the Department of Education for 1991-92 and 2000-01. They applied the old and the new class-size standards to determine the number of new teachers required then and now under the old and the new standards (see the table below) and used that information to allocate costs between the EIA and growth.

Class-size Requirements Before and After Passage of the Education Improvement Act

	Old Requirements[49]		New Requirements[50]	
Class	Without Waivers	With Waivers	School-wide Averages	Individual Class Maximums
Kindergarten through Grade Three	25	28	20	25
Grade Four	28	31	25	30
Grades Five and Six	30	33	25	30
Grades Seven through Twelve	35	39	30	35
Vocational	23	25	20	25

- Four figures were calculated for each school system, grade-level unit by grade-level unit, but not school by school:
  1. the minimum number of teachers necessary to meet the old class-size standard without waivers in school year 1991-92
  2. the minimum number of teachers necessary to meet the new class-size averages in school year 1991-92
  3. the minimum number of teachers necessary to meet the old class-size standard without waivers in school year 2000-01

49 Rules and Regulations, State of Tennessee, Chapter 0520, Rule 0520-1-3-.03(3). Ten percent waiver granted upon request. [http://www.state.tn.us/sos/rules/0520/0520.htm]
50 Public Chapter 535, Section 37, Acts of 1992; codified at Tennessee Code Annotated, §49-1-104(a).

4. the minimum number of teachers necessary to meet the new class-size averages in school year 2000-01

- Once those figures were calculated, the school systems were screened as follows:
  1. If the number of teachers needed to meet the EIA standard in 2000-01 was the same or less than the number necessary to meet the old standard in 1991-92, then none of the reported cost was attributed to the EIA. This was the case for 31 of the 138 school systems.

  2. Otherwise, if the number of teachers needed to meet the old standard in 2000-01 was less than the number necessary to meet the old standard in 1991-92, then all of the reported cost was attributed to the EIA. This was the case for five of the 138 school systems.

  3. Otherwise, the reported cost of new construction was allocated between growth and the EIA based on the proportion of additional teachers needed to meet the new standard in 2000-01 versus the number that would have been needed under the old standard.

Because staff did not have consistent information from all school systems to determine which, if any, new schools were replacing old schools and had no aspect of growth or EIA mandates, they did not attempt to exclude any reported costs from this formula. Less than ten percent of the reported costs were for new schools that had the word replace somewhere in their descriptions, and in many of those cases, growth and the EIA were specifically mentioned in relation to the size of the project.

Glossary of Terms

- **Education Improvement Act (EIA):** A law enacted by the General Assembly in 1992 that had the effect of, among other things, requiring additional teachers and therefore classroom space to be in place at the beginning of the 2001-2002 school year.

- **Estimated Cost:** An approximate amount of money reasonably judged necessary to complete a project recorded in the Public Infrastructure Needs Inventory. Estimates must be in current dollars, not adjusted for future inflation. Cost estimates recorded in the inventory should not be limited by the ability of the reporting entity to pay them.

- **Existing K-12 Schools Survey Form:** The blank document to be completed for existing K-12 schools recorded in the Public Infrastructure Needs Inventory. The construction of new schools is to be reported on the General Survey Form.

- **Federal Mandate:** Any rule, regulation, or law originating from the federal government that affects the cost of a project recorded in the Public Infrastructure Needs Inventory. See also Mandate.

- **General Survey Form:** The blank document to be completed for each project to be recorded in the Public Infrastructure Needs Inventory except existing K-12 schools [see Existing K-12 Schools Survey Form]. Types of projects for which these survey forms should be completed are listed and defined under Type of Project.

- **Infrastructure; Public Infrastructure:** Capital facilities and land assets under public ownership, or operated or maintained for public benefit, including transportation, water and wastewater, industrial sites, municipal solid waste, recreation, low and moderate income housing, telecommunications, and other facilities or capital assets such as public buildings (e.g., courthouses; education facilities). Other examples include the basic network of public utilities and access facilities that support and promote land development; storm drainage systems; roads, streets and highways; railroads; gas and electric transmission lines; solid waste disposal sites and similar public facilities.

- **Infrastructure Need:** An infrastructure project with a minimum capital cost of $50,000 deemed necessary to enhance and encourage economic development, improve the quality of life of the citizens, and support livable communities. Infrastructure projects included in the inventory, including each component project in the survey of existing schools, must involve a capital cost of not less than fifty thousand dollars ($50,000), with the exception of technology infrastructure projects in the survey of existing schools, which may be included regardless of cost. Projects considered normal or routine maintenance shall not be included in the inventory, with the exception of transportation projects, which may be included so long as they involve capital costs are not less than fifty thousand dollars ($50,000).

- **Mandate; Federal/State Mandate:** Any rule, regulation, or law originating from the federal or state government that affects the cost of a project recorded in the Public Infrastructure Needs Inventory. See also Mandate—cost of compliance.

- **Mandate—Cost of Compliance:** The marginal cost attributable to the additional requirements imposed by a federal or state mandate. The expense that would not be incurred in the absence of the federal or state mandate.

- **Ownership:** The entity [e.g., agency, organization or level of government] that will hold legal title to the capital facility or land asset upon completion of the project.

- **Routine Maintenance:** Regular activities, including ordinary repairs or replacement unrelated to new construction, designed to preserve the condition or functionality of a capital facility or appurtenance to a capital facility, typically costing less than $5,000 for each individual instance. Examples of routine maintenance include but are not limited to the replacement of air filters, light bulbs, moving parts subject to natural wear-and-tear, the replenishing of lubricating or combustible fluids, or the application of paints or other preservatives.

- **State Mandate:** Any rule, regulation, or law originating from state government that affects the cost of a project recorded in the Public Infrastructure Needs Inventory. See also Mandate.

- **Status/Stage of Project:** The current phase of development for a project recorded in the Public Infrastructure Needs Inventory may be any one of the following:

  - **Canceled:** terminated at any stage from conceptual through design or construction; eliminated from consideration for any reason other than completion; to be removed from the Public Infrastructure Needs Inventory.

  - **Completed:** construction or acquisition is concluded and the capital facility or land asset is available to provide the intended public benefit.

  - **Conceptual:** identified as an infrastructure need with an estimated cost, but not yet in the process of being planned or designed. See Infrastructure Need and Status/Stage of Project—Planning & Design.

  - **Construction:** actual execution of a plan or design developed to complete or acquire a project identified as an infrastructure need. See Infrastructure Need and Status/Stage of Project—Planning & Design.

  - **Planning/Design:** development of a set of specific drawings or activities necessary to complete a project identified as an infrastructure need. See Infrastructure Need and Status/Stage of Project—Construction.

- **Type of Project:** Classifications that may be used for projects recorded on the General Survey Form of the Public Infrastructure Needs Inventory [subject to the definitions of Infrastructure and Infrastructure Need] include the following:

  - **Business District Development:** Creation, acquisition, expansion or enhancement of a local or regional area or facility designated for commercial enterprise or activity. [Distinguish "community" development.] Examples include but are not limited to parking facility improvements, business park development, and speculative building to attract businesses.

- **Community Development:** Creation, acquisition, expansion, renovation or improvement of a local area or facility designated for the benefit of the residents of a specific locality bound together by a shared government or a common cultural or historical heritage. [Distinguish "business district" development.]. Examples include but are not limited to establishing a community center, restoring a historic site, improvements to a tourist attraction, building a welcome center, and constructing residential sidewalks.

- **Fire Protection:** Capital facilities or assets developed or acquired to support publicly funded efforts to prevent, contain, extinguish or limit loss from the destructive burning of buildings, towns, forests, etc. Examples include but are not limited to fire hydrants, fire stations and emergency alert systems.

- **Housing:** Capital or land assets developed or acquired to support publicly funded low- or moderate-income residential facilities or shelters. Examples include but are not limited to housing for the elderly, public housing redevelopment/ rehabilitation, modular public housing, public assisted living facilities, and low-income senior housing.

- **Industrial Sites & Parks:** Capital or land assets developed or acquired to support publicly funded areas for the location of trade or manufacturing enterprises. Examples include but are not limited to speculative industrial building, and land acquisition for industrial development.

- **K-12 New School Construction:** The development or acquisition of a facility to house instructional programs for kindergarten through twelfth grade students and that has been or will be assigned a unique school identification number by the Tennessee Department of Education.

- **LEA System-wide Need:** Projects that are related to K-12 education, but do not meet the definition of K-12 School. Examples include, but are not limited to, the central office, maintenance and transportation facilities, buses and other vehicles provided the vehicle need meets the $50,000 minimum.

- **Law Enforcement:** Capital facilities or land assets developed or acquired to support publicly funded efforts to compel obedience to prevent violation of statutes, ordinances, regulations or rules prescribed by governmental authority. Examples include but are not limited to jails, and police stations.

- **Libraries & Museums:** Capital facilities or land assets developed or acquired to house publicly funded and accessible, catalogued collections of books, recordings; other reading, viewing or listening materials; works of art, scientific specimens, or other objects of permanent value.

- **Navigation:** Capital facilities or land assets developed or acquired to support publicly funded efforts to provide for or improve transportation by water. Examples include but are not limited to public boat docks, channel dredging, river bank reinforcement and public ferryboats.

- **Non K-12 Education:** Capital facilities or land assets developed or acquired to support

publicly funded instructional programs for post-secondary students. Examples include junior colleges, public colleges, public universities or public adult continuing education.

- **Other Facilities:** Capital assets developed or acquired to support publicly funded programs or initiatives that do not meet the definition of any other type of project.

- **Property Acquisition:** The purchase of land assets to support publicly funded programs or initiatives that do not meet the definition of any other type of project.

- **Public Buildings:** Capital facilities developed or acquired to support publicly funded programs or initiatives that do not meet the definition of any other type of project. Examples include but are not limited to building or renovating a courthouse, city hall, post office, and public restrooms.

- **Recreation:** Capital facilities or land assets developed or acquired to support publicly funded efforts to provide for physical activity, exercise, pass-times or amusements. Examples include but are not limited to greenways, hiking trails, public swimming pools, parks, public marinas, ballparks, soccer fields, tennis courts, basketball courts, playgrounds, and a municipal auditorium.

- **Solid Waste:** Capital facilities or land assets developed or acquired to support publicly funded efforts to provide for the disposal or processing of any garbage, refuse, including, recyclable materials when they become discarded; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and any other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under § 402 of the Federal Water Pollution Control Act or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954. Examples include but are not limited to recycling centers, transfer station, public landfills, public dumps, green boxes, public dumpsters, garbage trucks and other vehicles, provided the rolling stock need meets the $50,000 minimum cost criteria.

- **Storm Water:** Capital facilities or land assets developed or acquired to support publicly funded efforts to collect, transport, pump, treat or dispose of runoff from rain, snow melt, surface runoff, wash waters related to street cleaning or maintenance, infiltration (other than infiltration contaminated by seepage from sanitary sewers or by other discharges) and drainage. Examples include but are not limited to drainage structures, conduits, sewers other than sanitary sewers, berms, catch basins and culverts, gutters and downspouts.

- **Technology:** Capital assets, including advanced or sophisticated devices such as electronics and computers, but not including telecommunications assets, developed or acquired for general public benefit.

- **Telecommunications:** Capital facilities or land assets developed or acquired to support the transmission, emission, or reception of impulses, including signs, signals, writing,

images or sounds of any nature, by wire, radio, optical or other electric, electromagnetic or electronic system for public benefit.

- **Transportation:** Capital facilities or land assets developed or acquired to support the conveyance of people, goods, etc. for general public benefit. Examples include but are not limited to the construction and rebuilding of highways, roads, railroad tracks, rail spurs for industry, airports, and mass transit systems.
- **Other Utilities:** Capital facilities or land assets developed or acquired to support the provision of public services such as electricity or gas, but not including water or telecommunications [q.v.]. Examples include but are not limited to the installation of gas lines and electrical cables.

- **Water & Wastewater:** Capital facilities or land assets developed or acquired to support the treatment or distribution of potable water or the collection, treatment or disposal of commercial and residential sewage or other liquid waste for general public benefit. Examples include but are not limited to constructing a water tower, pumping station, or water treatment plant.

- **Upgrade:** A significant improvement or enhancement of the condition of existing infrastructure. For example a building might be in poor condition, but the addition of a new roof and the replacement of damaged drywall could bring the condition up to good. [Contrast Routine Maintenance.]

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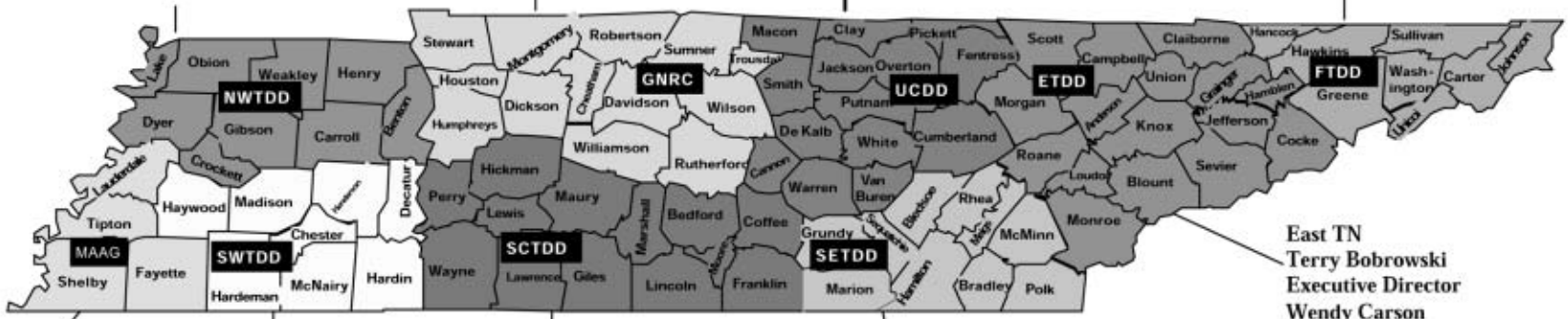

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